STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: December 6, 2019

FROM: Andrew O'Sullivan
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Cornish-Windsor, 25067

TO: Karl Benedict, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(i). The proposed work consists of the installation of scour countermeasure protection for the Cornish Toll Road Covered Bridge located on Bridge Street in the Towns of Cornish, Sullivan County, New Hampshire and the Town of Windsor, Windsor County, Vermont and is located over the Connecticut River.

This project was reviewed at the Natural Resource Agency Coordination Meeting on May 20, 2015 and July 17, 2019. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm

Mitigation is not required for the project as the material being placed is a replacement of material that previously existed.

The lead people to contact for this project are David Scott, Project Manager, Bureau of Highway Design (271-2165 or david.scott@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-3226 or andrew.o'sullivan@dot.nh.gov).

A payment voucher has been processed for this application (Voucher # 590913) in the amount of $11,040.40.

If and when this application meets with the approval of the Bureau, please send the permit directly to Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment.

AMO:amo
Enclosures

cc:
BOE Original
Town of Hinsdale (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
Bureau of Construction
Carol Henderson, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Mark Kern, US Environmental Protection Agency (via electronic notification)
Michael Hicks, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)
Connecticut River Wantastiquet Local Advisory Committee (via certified mail)

S:\WETLANDS\App & Permit Letters & Forms\Wetlands Bureau\WETAPP - Bridge.doc

CORNISH TOLL ROAD COVERED BRIDGE

Bridge #064/108

Scour Protection

NH Standard Dredge & Fill Application

Cornish, NH–Windsor, VT
A003(035)
25067
December 2, 2019

CONTENTS

NHDES Wetlands Permit Application Form

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau

Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	*Administrative Use Only*	*Administrative Use Only*	File No.:
			Check No.:
			Amount:
			Initials:

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required, a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if mitigation is required, please refer to the Determine if Mitigation is Required Frequently Asked Questions.

Mitigation Pre-Application Meeting Date: Month: __ Day: __ Year: ____

☒ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.

ADDRESS: **Bridge Street** TOWN/CITY: **Cornish**

TAX MAP: **ROW** BLOCK: **ROW** LOT: **ROW** UNIT: **ROW**

USGS TOPO MAP WATERBODY NAME: **Connecticut River** ☐ NA STREAM WATERSHED SIZE: **4626.13 sq mi** ☐ NA

LOCATION COORDINATES (If known): **43°28'25"N, 072°23'02"W** ☒ Latitude/Longitude ☐ UTM ☐ State Plane

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

The project involves the installation of scour protection measures to address concerns with erosion and scour around the existing bridge pier and abutments of the Cornish Toll Road Covered Bridge over the Connecticut River. The bridge is currently coded as scour critical. Countermeasures proposed include partially grouted riprap and Class A/B stone.

5. SHORELINE FRONTAGE:

☐ N/A This does not have shoreline frontage. SHORELINE FRONTAGE: **272'**

Shoreline Frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line (Env-Wt 101.89).

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Webpage.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☒ YES ☐ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **19**___ - **1049**___.

b. ☒ This project is within a Designated River corridor. The project is within ¼ mile of: **Connecticut River** ; and date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____

☐ N/A – This project is not within a Designated River corridor.

8. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **NH Department of Transportation**			
TRUST / COMPANY NAME:	MAILING ADDRESS: **7 Hazen Drive**		
TOWN/CITY: **Concord**		STATE: **NH**	ZIP CODE: **03302**
EMAIL or FAX: **Andrew.O'Sullivan@dot.nh.gov**	PHONE: **271-3226**		
ELECTRONIC COMMUNICATION: By initialing here: _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.			

9. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.: **NH Department of Transportation**			
TRUST / COMPANY NAME:	MAILING ADDRESS:		
TOWN/CITY:		STATE:	ZIP CODE:
EMAIL or FAX:	PHONE:		
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.			

10. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: **Perron, Christine**	COMPANY NAME:**McFarland-Johnson, Inc**		
MAILING ADDRESS: **53 Regional Drive**			
TOWN/CITY: **Concord**		STATE: **NH**	ZIP CODE: **03301**
EMAIL or FAX: **cperron@mjinc.com**	PHONE: **225-2978**		
ELECTRONIC COMMUNICATION: By initialing here **cjp** , I hereby authorize NHDES to communicate all matters relative to this application electronically.			

11. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for National Historic Preservation Act (NHPA) 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the NHDES is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

⇨ Property Owner Signature	Print name legibly	/ / Date

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.

2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.

3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.

2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;

3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.

4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and

5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

14. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact.

Permanent: *impacts that will remain after the project is complete.*

Temporary: *impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.*

Intermittent Streams: *linear footage distance of disturbance is measured along the thread of the channel.*

Perennial Streams/ Rivers: *the total linear footage distance is calculated by summing the lengths of disturbance to the channel and each bank.*

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland		☐ ATF		☐ ATF
Emergent wetland		☐ ATF		☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream channel	/	☐ ATF	/	☐ ATF
Perennial Stream / River channel	8,262 / 284	☐ ATF	18,539 / 475	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	386 / 25	☐ ATF	414 / 33	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
Vernal Pool		☐ ATF		☐ ATF
TOTAL	8,648 / 309		18,953 / 508	

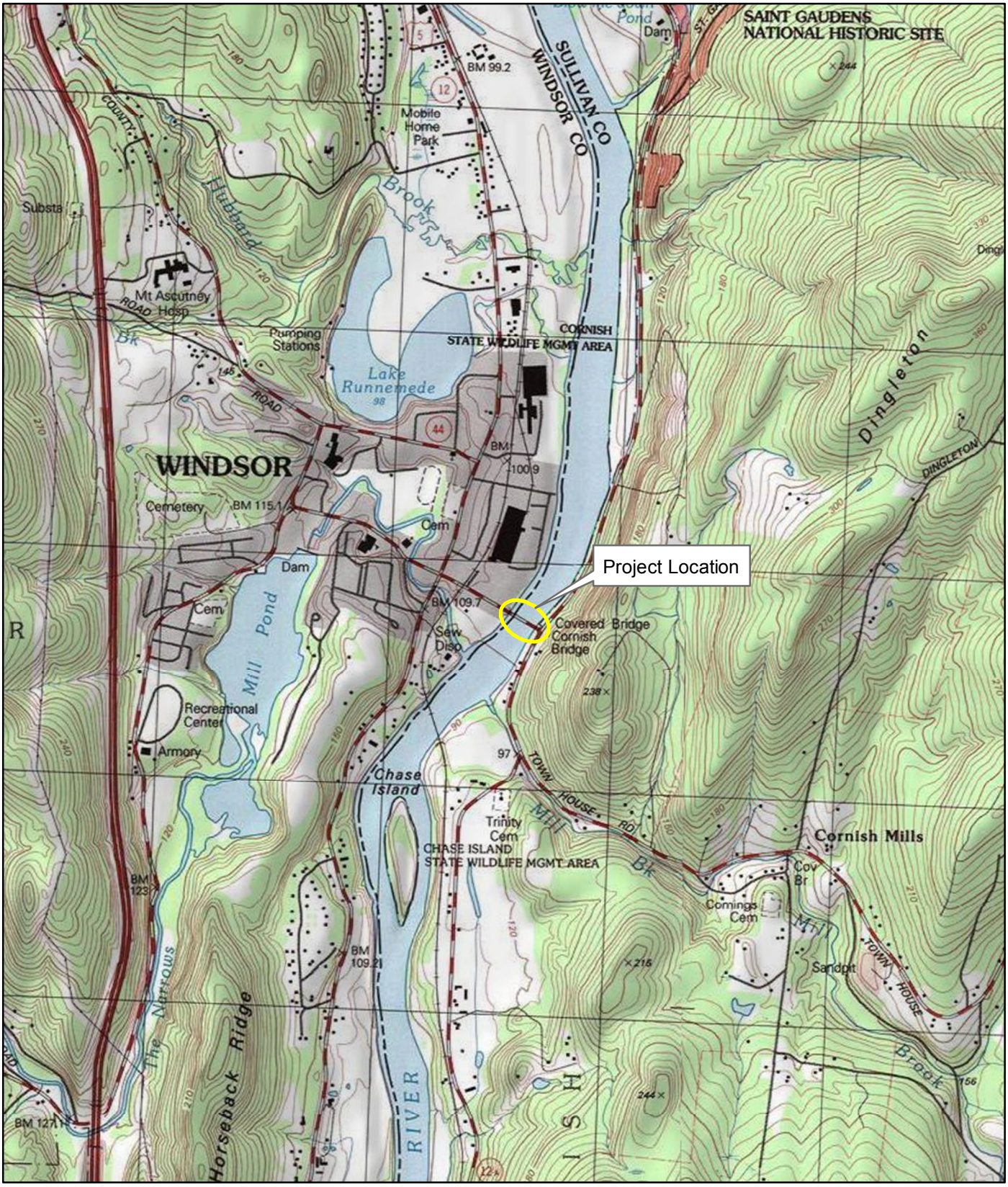
15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee or Fee for Non-enforcement related, publicly-funded and supervised restoration projects, regardless of impact classification (see RSA 482-A:3, 1(c)): Flat fee of $ 400

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking)	**27,601** sq. ft.	X $0.40 =	$ **11,040.40**
Temporary (seasonal) docking structure:	sq. ft.	X $2.00 =	$
Permanent docking structure:	sq. ft.	X $4.00 =	$
Projects proposing shoreline structures (including docks) add $400 =			$
Total =			$ **11,040.40**
The Application Fee is the above calculated Total or $400, whichever is greater =			$ **11,040.40**

Location Maps



NH DEPARTMENT OF TRANSPORTATION

CORNISH, NH - WINDSOR, VT, 25067

USGS LOCATION MAP

SCALE :	DATE :	FIGURE :
1 inch = 2,000 feet	NOVEMBER 2019	1

McFarland Johnson

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NH DEPARTMENT OF TRANSPORTATION

CORNISH, NH - WINDSOR, VT, 25067

USGS LOCATION MAP

SCALE :	DATE :	FIGURE :
1 inch = 250 feet	NOVEMBER 2019	2

McFarland Johnson

Attachment A – 20 Questions

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management
Wetlands Bureau

Check the Status of your application: www.des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The NHDOT is proposing to install scour countermeasure protection for the Cornish Toll Road Covered Bridge located on Bridge Street in the Towns of Cornish, Sullivan County, New Hampshire and the Town of Windsor, Windsor County, Vermont. The project involves the existing Bridge Street two-lane covered bridge over the Connecticut River. This 2-span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by the NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and central pier. Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill, is individual angular stone approximately 2-3' average diameter, which is proposed at selected bank locations on both sides of the river and at the central pier. The second is Partially Grouted Riprap (PGR), which is proposed to be installed only in front of the abutments. Temporary access to all three substructure units is proposed via a barge accessed from the northeast bank in New Hampshire.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

1) The "no-build" alternative is not a viable option. The bridge has been designated as scour critical and the potential collapse of the bridge into the river due to the failure of the abutments or central pier could create hazards in terms of debris and potential blockage of the channel, erosion of the river banks and/or destruction of infrastructure downstream.

2) The replacement of the existing bridge/foundations in their entirety is exceedingly expensive and will create greater impacts to the river channel/banks with increased scope and time of construction, as well as detours for the area residents.

3) The preferred alternative has been designed to protect the abutments and pier from scour damage and bank erosion with the least amount of environmental impact. Partially Grouted Riprap was selected as one countermeasure because it allows the use of less stone and smaller diameter stone, which results in the need for less bed preparation. The PGR results in a thinner interlocking layer of stable stones designed to resist higher flood velocities than un-grouted stone.

See additional comments on Page 9.

3. The type and classification of the wetlands involved.

The Connecticut River is classified as Riverine, Lower Perennial, Unconsolidated Bottom, Cobble-Gravel and Sand with a permanently flooded water regime (R2UB1/2H) according to USFWS National Wetland Inventory (NWI) maps. Ecological communities described by the New Hampshire Wildlife Habitat Land Cover (2015) Maps (New Hampshire Wildlife Action Plan Maps (Base Map - Granit, 2015) and Natural Communities of New Hampshire, Second Edition (Sperduto and Nichols) identify vegetated river banks/floodplain areas as Red Maple Floodplain Forest (S2S3), Herbaceous Riverbank/Floodplain (S4) and Cobble -Sand River Channel (S3S4).

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

The project will result in impacts to the banks and channel of the Connecticut River. The Mill River outlets into the Connecticut River just downstream of the Cornish Toll Road Covered Bridge.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

The Connecticut River is a major waterbody with an associated FEMA mapped 100-year floodplain. The river begins at the Town of Pittsburg in northern New Hampshire and flows south for approximately 255 miles to the New Hampshire/Massachusetts State Line. It is classified as all or part of 7 of the 16 Level 8 Hydrologic Units Water Basins for the state of New Hampshire. The towns of Cornish and Windsor are located downstream from the headwaters approximately ¾ of the river length. Riverine systems in this region of New Hampshire occur frequently across the landscape and are integral for recreational activities such as boating and fishing and commercial use to a lesser degree. No rare wetland communities/surface waters occur in or adjacent to the project area.

6. The surface area of the wetlands that will be impacted.

Permanent impacts consist of approximately 8,262 square feet (s.f.) of permanent impacts to the Connecticut River channel at/below ordinary high water (OHW) with the A & B Stone Fill and/or PGR associated with the left and right abutments and central pier. Bank impacts between OHW and Top of Bank (TOB) will result in approximately 386 s.f. of permanent impacts. Temporary impacts to the river channel associated with temporary work space, erosion and sediment control measures/cofferdams and the barge access include an additional 18,953 s.f.

Temporary materials placed in jurisdictional areas during construction will be removed upon completion of construction. Temporary bank impacts will be stabilized and seeded with standard DOT slope mix.

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

Two Federally listed species were identified on the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) project planning tool as potentially occurring within the project area: 1) the threatened Northern Long-Eared Bat (Myotis septentrionalis), and 2) the endangered dwarf wedgemussel (Alasmidonta heterodon). No critical habitats are listed for the area according to the USFWS. A number of state-listed species are documented in the general vicinity of the project area according to the NH Natural Heritage Bureau Review: 1) bald eagle (Haliaeetus leucocephalus), 2) cobblestone tiger beetle (Cicindela marginipennis), 3) Appalachian barren-strawberry (Geum fragaroides), 4) Eastern waterleaf (Hydrophile virginianus), and 5) large-flowered bellwort (Uvular grandiflora). Impacts to these species have been avoided or minimized. All potential species of concern are addressed in more detail in the enclosed narrative.

No exemplary natural communities or vernal pools are documented to occur within the project area. Proposed construction activities such as cofferdams will impact only a portion of the river at a time and a zone of passage will be maintained at all times during construction. Therefore, impacts to migratory fish and wildlife are not anticipated.

8. The impact of the proposed project on public commerce, navigation and recreation.

The Connecticut River is listed as a navigable waterway under ACOE jurisdiction and can be used both for recreation purposes and for public commence. The proposed project does not require a US Coast Guard Bridge Permit; however, the US Coast Guard did require certain stipulations be met which are noted in their letter dated October 4, 2018 (enclosed). The proposed work represents predominantly repair/replacement of existing scour protection measures and the instream work outside of the scour protection measure footprint is temporary. The project will have minimal impact to the public rights of navigation, and access to the central pier/abutments from the east bank via barge traffic will only partially obstruct sections of the river during active countermeasure installation. This arrangement will leave the channel predominantly open for pubic recreational and commercial use during installation of proposed scour protection measures. Signage and other forms of safety protection, such as floating booms, may direct river traffic around temporary work zones during construction.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The proposed scour protection countermeasures will be installed along the right and left abutments and central pier above/below the water line and along the banks. No work is proposed for the covered bridge or sub-structure. While the in-water riprap may be visible during low flow periods from the bridge and banks, it represents a repair/replacement and will not significantly add to the footprint of the abutments or central pier. Over time the new materials should attain coloration similar to the existing channel bottom and can blend into the surrounding environment. Riprap on the river banks at/above OHW is necessary for long-term scour protection and will be more visible. However, trees, shrubs and herbaceous species may naturally revegetate these areas over time. As a historic resource, impacts to aethethics were considered as part of the Section 106 consultation for the covered bridge and it was determined that the proposed work would not result in an adverse effect.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The proposed scour protection countermeasures (Stone Fill and/or PGR) will be installed along the right and left abutments and/or central pier above/below the water line and along the banks. Current use of the Cornish-Windsor Bridge parking area/bridge overlook, the Connecticut River and the general bridge area by the public may involve sporadic foot traffic along the upland slopes/banks to access the river for recreational purposes such as swimming, boating and fishing. The stone riprap and PGR will not modify existing conditions appreciably and should not significantly impede future foot traffic or river use over exiting conditions.

During construction, public access to work zones will be restricted for safety purposes, but this is only temporary and protection of the Cornish Toll Road Covered Bridge over the long-term is a priority and will be achieved through the proposed work. Minor delays in traffic for ingress/egress of construction equipment at temporary work entrances is anticipated.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

No permanent land acquisition or easements are required for this project. Installation of scour protection countermeasures will stabilize banks and the channel adjacent to the bridge and prevent future bank erosion and loss of property.

12. The benefit of a project to the health, safety, and well being of the general public.

The bridge has been designated as scour critical and the protection of the existing foundations with countermeasures is necessary over the long-term. The potential collapse of the bridge into the river due to the failure of the abutments or central pier may create potentially significant safety and environmental issues due to debris and potential blockage of the channel/erosion of the river banks and/or destruction of infrastructure downstream.

The proposed project will not result in major traffic disruptions because access to the roadway will not be changed or impacted. Temporary impacts to traffic patterns during the construction phase of the project is expected to entail closing one lane of NH Route 12A to provide space for construction access just north of the bridge. Alternating two-way traffic will be maintained with signals for the duration of the lane closure.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

Proposed cofferdams and turbidity barrier curtains around the proposed limits of in-water work will protect against silt-laden discharges to, and preserve water quality of, the Connecticut River. Water diversion methods (cofferdams/turbidity curtains) will reduce the flow velocities in the vicinity of the central pier and right/left abutments and will isolate the work area from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting, the contractor will be required to monitor surface water outside the contained work area for any pH increases. If pH measurements exceed allowable thresholds, then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

The Connecticut River is not identified on the NHDES Section 303(d) Surface Water Quality List for New Hampshire as a Category 5 impaired surface water. The proposed installation of scour protection countermeasures along the existing bridge abutments/central pier will result in only temporary disturbance and no changes to the long-term quantity and quality of surface and groundwater resources are anticipated following construction.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

The proposed project temporarily encroaches on the regulatory floodway of the Connecticut River. A temporary bulkhead off the northeast bank of the river may be needed for the purposes of providing access for equipment and materials for scour protection measure improvements. This infrastructure is temporary and will be removed once work at the central pier and abutments is completed. Following installation, the countermeasures will result in a negligible increase in base flood elevation, partially due to the fact that long-term scour/erosion has removed much of the original material. A hydraulic model was prepared to study the impacts of the proposed action, and it was determined that the effects of the fill on the floodway are negligible. No coordination with FEMA through the Conditional Letter of Map Revision process is required prior to the start of the project.

No redirection/deflection of channel flows are anticipated as a result of the proposed scour countermeasures, and following installation, the countermeasures should protect against long-term erosion and downstream sedimentation.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

As identified in Item #14 above, the scour protection countermeasures are anticipated to result in only a negligible increase in base flood elevation, and no redirection/deflection of channel flows are anticipated as a result of the proposed installation.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

Scour protection countermeasures proposed for the Connecticut River are needed due to the scour critical designation of the Cornish Toll Road Covered Bridge. Some of the material proposed as fill will replace material that has eroded from the abutments and central pier over time. The project represents necessary infrastructure repair/maintenance, and work in the state-designated river/floodway qualifies on the basis of the public need.

Tree clearing is proposed on the upland/riparian river banks immediately adjacent to the bridge where the scour protection countermeasures are proposed as well as associated with the temporary access in the northeast quadrant (See Item #4 above). Future public and/or private projects upstream/downstream of the Cornish Toll Road Covered Bridge with the potential to impact wetland resource areas would need to undergo NHDES review and approval, and cumulative impacts would be considered and could be minimized/mitigated during the evaluation process.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

Due to the relatively small footprint of the work, much of which occurs within the existing scour countermeasure protection area, and temporary work areas within the channel and on the banks that will be restored to pre-exising conditions to the extent feasible, overall impacts will be minimized. Futhermore, installation of the scour countermeasures will stablize the bridge/adjacent areas and reduce scour/downstream sedimentation over the long-term. The function of the river bed and banks as fishery/wildlife habitat and for floodwater conveyance/storage will not change following construction.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

There are no federally designated Natural Landmarks located in the vicinity of the project.

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

The 410-mile Connecticut River, including its 7.2 million-acre watershed, was designated as the country's first (and only) National Blueway in May 2012. The intent of this designation was to establish a "community-driven conservation and recreation agenda for the 21st century." The proposed project will address existing transportation infrastructure over and adjacent to the river. The project will not impact the river's conservation or recreational values.

The Silvio O. Conte National Wildlife Refuge is comprised of over 36,000 acres within parts of the four Connecticut River watershed states of New Hampshire, Vermont, Massachusetts, and Connecticut. The refuge "works in partnership with a wide variety of individuals and organizations to provide environmental education, to encourage and support appropriate habitat conservation and management on public and private lands, and to protect habitat." Federally protected lands do not exist in or near the project area. As noted above, the proposed project will address existing transportation infrastructure over and adjacent to the river and will not impact the river's conservation or recreational values.

The Connecticut River was designated in 2012 as a NH Designated River under NH RSA 483, The Rivers Management and Protection Act. The Rivers Management and Protection Act classifies the entire length of designated rivers using four categories: Natural, Rural, Rural-Community, and Community. State regulated protection measures apply to each of these categories. The segment of the Connecticut River within the project area is classified as Rural-Community. No protection measures associated with this classification restrict the construction of the proposed project. The project will not affect the characteristics contributing to its designation. A copy of the Dredge and Fill Permit Application will be submitted to the Local River Management Advisory Committee (LAC)/Connecticut River Mt. Ascutney Local Advisory Subcommittee.

20. The degree to which a project redirects water from one watershed to another.

No redirection/deflection of channel flows is anticipated as a result of the proposed scour countermeasures since they will have a relatively low profile, and following installation, the countermeasures should protect against long-term erosion and downstream sedimentation. Futhermore, because the project is centrally located within the Connecticut River – White River to Bellows Falls Basin, redirection of water between watersheds is unlikely.

Additional comments

Question #2:

Alternative construction access options were also considered. A temporary causeway to provide access to the pier from the bank was considered conceptually. However, a causeway would block half the channel. The Connecticut River is a navigable river along this stretch and is moderately deep. The quantity of material that would be required to construct the causeway would be substantial, and there would be greater potential to impact water quality during its installation and removal due to the suspension of fine sediments. In addition, dwarf wedgemussels have been documented within this stretch of river and a causeway could have greater potential to impact this species. For these reasons, the use of a river barge to access the pier is anticipated to result in less overall impact. A barge will likely require the construction of a bulkhead, which will be a much smaller temporary impact area than a causeway. Construction of this bulkhead was considered along the Vermont bank; however, it was determined that access to the Vermont bank by construction equipment would require access through and temporary impacts to private properties. Access was also evaluated from the NHFG boat ramp located upstream of the bridge; however, a site / river reconnaissance determined that the water depth was too shallow for anticipated barge access. The parking area located in the SE quadrant off NH Route 12A was considered for access. However, the Town of Cornish expressed concerns over the loss of the parking area during construction and the fact that the bridge is a large tourist attraction. The design team also had concerns regarding the concrete block retaining wall that supports the parking area and whether or not it could support construction equipment loads. Therefore, it was determined that the use of a barge from the NH bank would have the least impact to abutting properties and requires the smallest area of temporary impacts.

Natural Resource Agency Coordination Meeting Minutes

Cornish Project No 25067

Countermeasure installation at the Cornish Toll Road Covered bridge (Bridge street) over the Connecticut River. CHA provided handouts including 1 preliminary plan sheet, site photographs and information on Partially Grouted Riprap (PGR). This historic covered bridge received approval for bridge preservation funds to install PGR for scour protection around the bridge supports as part of a National Historic Covered Bridge Preservation application submitted by NHDOT.

Rob Faulkner provided an overview of the project intended to protect this bridge from damage during a flood. This 2 span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier. Temporary access to all three substructure units is proposed from using a state-owned parking area on the downstream southeast quadrant to construct a temporary riverbank bulkhead to accommodate marine barges and boats. Marine access is planned for the western abutment (Vermont side) as well as the pier. NHDOT will contact the Vermont Agency of Transportation and provide information of the proposed project. Separate permits (NH & VT) are anticipated. Coordination with the US Coast Guard is also planned for this project.

Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill is individual angular stone approximately 2-3' average diameter which is proposed at the pier and at selected bank areas on both sides of the river (see Plan sheet). At the pier the majority of the existing timber crib system is visible/exposed up to 1'upstream of the pier and along the western (Vermont) side of the pier. The timber crib along the east (NH) side of the pier is exposed up to 6' vertically and the channel bed is significantly deeper in this area. Un-grouted stone is proposed to re-establish the existing riverbed and cover the timber cribbing system around the pier. Minimal excavation of sand deposits at the downstream end of the pier will be removed prior to placement of the Class A & B stone fill. Turbidity curtains will be installed and contain the work area prior to any excavation (bed preparation) of the downstream pier nose as shown on the plan sheet.

Partially Grouted Riprap (PGR) is proposed to be installed in front of both abutments. While PGR has not been used widely throughout the United States, it has been used extensively in Europe with great success. CHA discussed the advantages with PGR including minimizing the impact to the placement area by using less/smaller diameter material (riprap) which requires less channel excavation/preparation and partially grouting the voids between the stones with a special high slump concrete mix. The result is a larger but thinner interlocking stable layer of stones designed to resist flood velocities much higher than with un-grouted stone. PGR was installed by NHDOT bridge maintenance forces in 2011 at a single span bridge in Holderness, NH. The result is a natural boulder laden channel bed that has gravel and sand deposits similar to a native stream bed. For the past 4 years the site is considered stable and the PGR countermeasure is performing well.

During the grouting process for the PGR countermeasure, a cofferdam and turbidity curtain barrier are proposed to isolate and contain the work area around the abutments from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting the contractor will be required to monitor for any pH increases noted outside the contained work area. If pH measurements exceed allowable thresholds then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

A Phase 1A Archeologic investigation performed by CHA sub-consultant IAC, indicated that the areas around this bridge have been disturbed during the previous construction of the bridge and adjacent NH Route 12A. A Phase 1B investigation is not recommended at this time.

NHB initial screening indicated the presence of sensitive species, however, the specifics were not provided pending payment for the complete database search. It was noted during the meeting that the area was likely habitat for long eared bats and Mussles,. The NHB file number has been requested. CHA will be contacting Susie van Ottingen from the USFWS to review this project related to potential impacts to the Long Eared Bat

Gino Infascelli provided an initial designation of “no Mitigation” and this project will be classified as “protection of existing infrastructure” Mr. Infascelli also indicated the Connecticut River is considered a designated river.

CHA will review the need for a NOI as the design development progresses. It was felt that the overall impact area would be less than 1 acre, however the project may include some dewatering / discharge. Pending results from the environmental screening as well as outstanding ROW information, CHA will be completing the NEPA documentation for the project.

It was noted that the project is expected to be advertised in January 2016 and that the construction duration is expected to be 4-6 weeks and intended to be completed during the seasonal low flow period between July and October.

Cornish Project No 25067

Countermeasure installation at the Cornish Toll Road Covered Bridge (Bridge Street) over the Connecticut River. CHA provided handouts including draft wetland impact plans, site photographs and information on Partially Grouted Riprap (PGR).

Rob Faulkner started the presentation noting that this was a project update since the project was presented at the Natural Resource Agency Coordination Meeting on May 20, 2015. He then provided an overview of the project which is intended to protect the Cornish-Windsor bridge from damage during a flood. He noted the two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill which is proposed at the pier and at selected bank areas on both sides of the river and Partially Grouted Riprap (PGR) which is proposed to be installed in front of both abutments. Rob Faulkner explained that PGR has not been used widely throughout the United States but had been used in a pilot project with NHDOT for a bridge in Holderness in 2011. He further explained the benefits of PGR over traditional riprap in that it reduces the necessary stone size and required excavation by "partially grouting" the smaller stones together to provide the same effective scour protection as larger stone / riprap.

Rob Faulkner continued to explain that since the May 2015 meeting, the proposed construction access has changed from the parking area located in the SE quadrant off of NH Route 12A to the SW quadrant in Vermont. The reason for the change was due to the Town of Cornish's concerns over the loss of the parking area during construction and the fact that the bridge is a large tourist attraction. CHA and the Department also had concerns regarding the concrete block retaining wall that supports the parking area and whether or not it could support construction equipment loads. Access was also evaluated from the NHFG boat ramp located upstream of the bridge, however a site / river reconnaissance determined that the water depth was too shallow for anticipated barge access.

Rob Faulkner described the Vermont access route via Main St. to River St, then through a private commercial property to McCarty Ave, to Bridge St. and then onto a private parcel where is terminates at a 50' x 50' laydown area in a field. The proposed route through the commercial property is due to the limited vertical clearance the Bridge St. / Railroad overpass. A temporary bulkhead dock will be installed at the bottom of the bank in the Connecticut River below the laydown area. He further noted that the bank between the bulkhead and laydown area would be cleared of brush and small trees, but would not be grubbed. He also noted that the plans did include a bank restoration and revegetation plan.

Mike Hicks asked if the access / project had been coordinated with the ACOE / VT. Rob Faulkner responded yes and that VTrans was coordinating all activities on the Vermont side of the project. Bob Landry further noted that the US Coast Guard had been contacted and had no issues with the access / project.

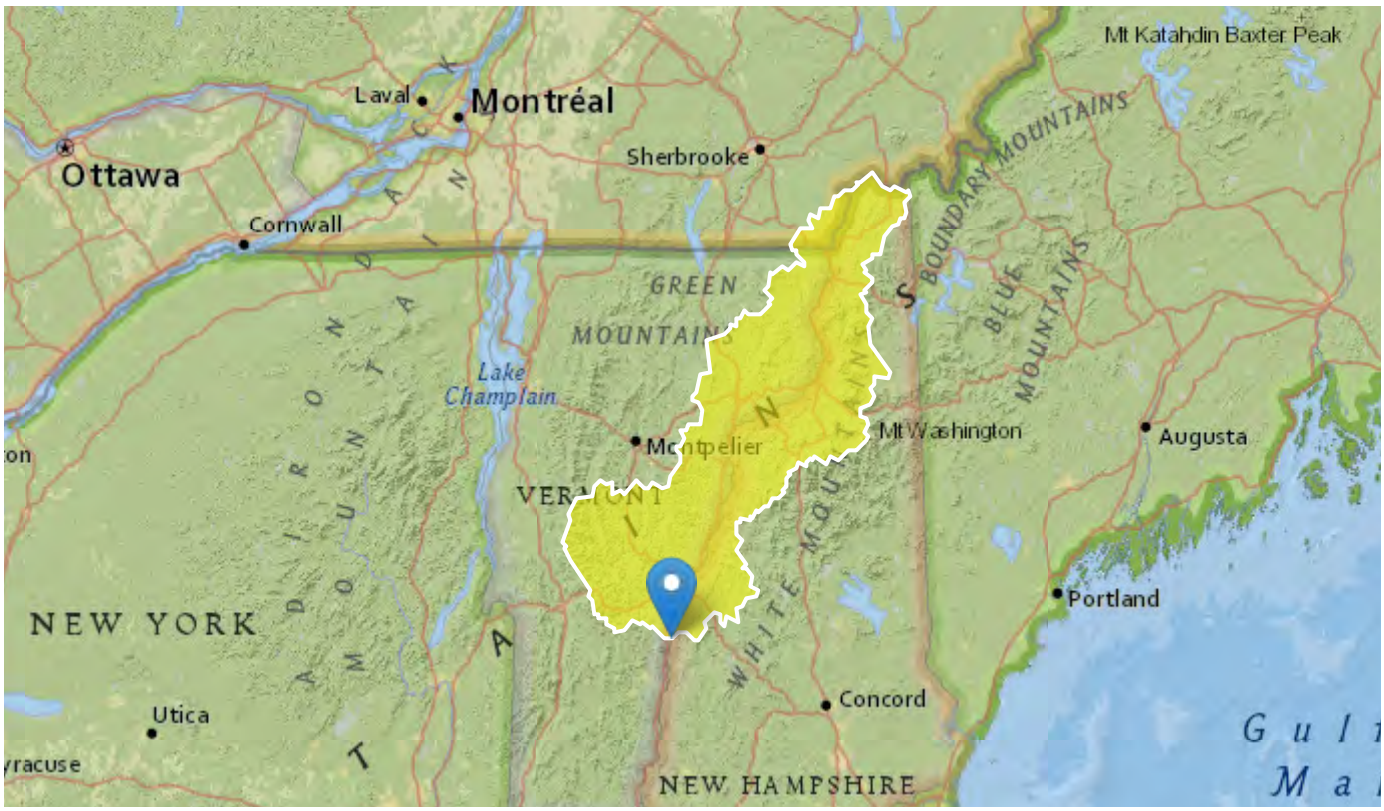
Lori Sommer asked on the timing for the Dredge and Fill Application to which Rob Faulkner responded approximately 2 weeks.

Mike Hicks asked if any rare, threatened or endangered species were in the river. Rob Faulkner responded that Normandeau had conducted a mussel survey and found a single mussel near the SW quadrant. The area has been indicated as “Area of non-disturbance” on the plans. Ron Crickard also noted that USFWS has been coordinated with throughout.

Watershed Boundary Map

StreamStats Report - Connecticut River - Bridge Street, Cornish, NH

Region ID: NH
Workspace ID: NH20180102190112688000
Clicked Point (Latitude, Longitude): 43.47373, -72.38409
Time: 2018-01-02 14:01:28 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
APRAVPRE	Mean April Precipitation	3.252	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	15.945	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	901328.1	
CENTROIDY	Basin centroid vertical (y) location in state plane units	650991.8	
CONIF	Percentaqe of land surface covered by coniferous forest	16.621	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	2.14	feet per mi
DRNAREA	Area that drains to a point on a stream	4626.13	square miles
ELEVMAX	Maximum basin elevation	6283.808	feet

Parameter Code	Parameter Description	Value	Unit
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	4.33	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	4.02	percent
MINTEMP_W	Mean winter minimum air temperature over basin surface area	7.73	degrees F
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	29.2466	percent
OUTLETX	Basin outlet horizontal (x) location in state plane coordinates	793845	
OUTLETY	Basin outlet vertical (y) location in state plane coordinates	355695	
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	6.14	inches
PREBC_1112	Mean annual precipitation of basin centroid for November 1 to December 31 period	6.61	inches
PRECIPCENT	Mean Annual Precip at Basin Centroid	37.1	inches
PRECIPOUT	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)	36	inches
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	7.4	inches
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	15.7	inches
SNOFALL	Mean Annual Snowfall	20.133	inches
TEMP	Mean Annual Temperature	40.042	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	57.969	degrees F
WETLAND	Percentage of Wetlands	3.2399	percent

General Disclaimers

The delineation point is in an exclusion area.

Stream Crossing Rules

NH Department of Transportation
Cornish-Windsor, 25067
Env-Wt 904.09 Alternative Design
TECHNICAL REPORT

Env-Wt 904.09(a) - If the applicant believes that installing the structure specified in the applicable rule is not practicable, the applicant may propose an alternative design in accordance with this section.

Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as *available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.)*

The purpose of this project is to protect existing infrastructure. The Cornish Toll Road Covered Bridge is coded as scour critical. The bridge deck, cover, abutments and central pier are all in serviceable condition. Due to scour/erosion at the base of the abutments and central pier, scour protection is required to protect the existing bridge and prevent continued scouring that could jeopardize the safety and integrity of the bridge. Providing scour protection is substantially more cost effective than replacing the entire bridge structure. Furthermore, the bridge is an important historic resource that is listed on the National Register of Historic Places and placing scour protection will help preserve the bridge's historic integrity.

The proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*, as specified below.

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings:

(a) In accordance with the NH Stream Crossing Guidelines.

The project proposes to protect existing infrastructure by installing scour protection measures immediately adjacent to the existing abutments and pier. The footprint of scour protection has been minimized to the maximum extent possible, and large portions of the river channel will remain as natural streambed.

(b) With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing.

Water depths and velocities of the existing natural channel will not be impacted.

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage.

The existing abutments currently extend to the edge of the watercourse and the proposed scour protection will be placed in front of the abutments. Providing vegetated banks is not feasible with the existing bridge structure.

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain.

The existing alignment and gradient will not change.

(e) To accommodate the 100-year frequency flood, to ensure that (1) there is no increase in flood stages on abutting properties; and (2) flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability.

The proposed scour countermeasures will result in a negligible increase in base flood elevation, in part because long-term scour has removed much of the original material. A hydraulic model was prepared to study the impacts of the proposed action, and it was determined that the effects of the proposed fill on the floodway are negligible.

(f) To simulate a natural stream channel.

The majority of the river channel will remain as natural streambed.

(g) So as not to alter sediment transport competence.

The project will not alter sediment transport competence.

Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:

Env-Wt 904.01
(a) Not be a barrier to sediment transport;

The project will not impede sediment transport.

(b) Prevent the restriction of high flows and maintain existing low flows;

The project will not impact existing high and low flows of the Connecticut River.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;
The project will not obstruct or disrupt aquatic organism passage beyond the duration of construction.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;

As noted above, it was determined that the effects of the proposed scour protection on the floodway are negligible.

(e) Preserve watercourse connectivity where it currently exists;

The project will preserve watercourse connectivity.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

Watercourse connectivity currently exists and will be maintained following construction.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and

Erosion and sedimentation is currently occurring around the abutments and pier in the existing condition. The proposed scour protection measures will protect the banks and channel from future erosion and scour.

(h) Not cause water quality degradation.

The project will implement erosion and sediment control measures during construction to protect water quality. The completed project is not expected to adversely impact water quality.

Summary of Species of Concern

Cornish, NH – Windsor, VT 25067
Cornish Toll Road Covered Bridge

Species of Concern

State Listed Plants (New Hampshire)

Appalachian barren-strawberry
Eastern waterleaf
Large-flowered bellwort

These three species have been documented to the east of NH Route 12A just north of the Cornish Toll Road Covered Bridge. The project will not impact the locations where these species have been documented. A habitat evaluation was completed within the project area and no individual species or localized populations were observed. Therefore, no adverse effects are anticipated to these species or their potential habitat.

State Listed Wildlife

Cobblestone Tiger Beetle – This species has been documented on Chase Island, located 0.6 miles downstream of the project area. There appears to be limited available habitat for this species within the project limits. Therefore, no adverse effects are anticipated.

Bald Eagle – This species could occur within the project area while roosting or foraging. However, no nests were observed in or adjacent to the project area. Only approximately 20 trees will be cleared during the temporary installation of the scour countermeasures and none of these trees are tall pines or other preferred roost or nest trees. Therefore, no adverse effects are anticipated for this species or its potential habitat.

Federally Listed Species

Northern Long-Eared Bat – The project was reviewed under the FHWA Programmatic Consultation for Northern Long-eared Bat. It was determined that the proposed project may affect, is likely to adversely affect (LAA) northern long-eared bat due to active season tree clearing. The USFWS confirmed that the project is consistent with the Programmatic Biological Opinion and is therefore not likely to jeopardize the continued existence of the northern long-eared bat.

Dwarf Wedgemussel – A mussel survey was completed in 2017 and a single dwarf wedgemussel on the Vermont side of the River was found. However, the mussel was found in atypical habitat for the species, suggesting that this individual could be a remnant from an extirpated population or that it may have washed into the area from upstream. A 25-foot radius area of "non-disturbance" will be shown on project plans around the location where the dwarf wedgemussel was found. The USFWS determined that the project was not likely to adversely effect this species.

Fisheries

Essential Fish Habitat – The river is designated as EFH for all life stages of Atlantic salmon. However, the National Marine Fisheries Service has suspended EFH consultation for projects on the Connecticut River. No further EFH consultation is required for this project.

American Shad – The American shad is protected under the Anadromous Fish Conservation Act and restoration efforts are underway from Maine to Virginia. The restoration of American shad in eastern Atlantic rivers is a cooperative effort between the USFWS, other Federal agencies, State fish and wildlife agencies located within the watershed, non-governmental organizations and the fishing industry. Shad inhabit oceanic waters and migrate into freshwater rivers to spawn. Shad migration into the Connecticut River occurs primarily between early May and mid-June. The historic upstream extent of the species range on the main stem of the Connecticut River is Bellow Falls, VT, approximately 30 miles downstream of Cornish. Therefore, this species is not expected to be present in the project area.

Species of Concern Correspondence

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

To: John Parrelli, CHA Inc.
11 King Court
Keene, NH 03413

From: Amy Lamb, NH Natural Heritage Bureau
Date: 4/8/2019 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB19-1049 Town: Cornish Location: Bridge Street - Cornish Toll Road Covered Bridge (#064/108)

Description: The project involves armoring/scour protection of the right/left abutments and central pier of the Cornish Toll Road Covered Bridge (#064/108). Scour countermeasures include Class A & B Stone Fill (angular) as well as Partially Grouted Riprap (PGR).

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: Please provide NHB with more information about the proposed work and how the work area will be accessed. Please contact the NH Fish & Game Department to address wildlife concerns.

Invertebrate Species	**State[1]**	**Federal**	**Notes**
Cobblestone Tiger Beetle (*Cicindela marginipennis*)	E	--	Contact the NH Fish & Game Dept (see below).
Dwarf Wedge Mussel (*Alasmidonta heterodon*)	E	E	Contact the NH Fish & Game Dept and the US Fish & Wildlife Service (see below).

Plant species	**State[1]**	**Federal**	**Notes**
Appalachian barren-strawberry (*Geum fragarioides*)	T	--	Occurs in sandplains, disturbed openings, mesic forests, dry forests, and thin woods. Threats include development, logging activities, recreational activities, trail development, and exotic species invasions.
eastern waterleaf (*Hydrophyllum virginianum*)	T	--	This plant's habitat is typically in forested, moist areas. Canopy removal could threaten the plants by allowing other, shade-intolerant species to become established. Trampling could also damage the relatively fragile soils.
large-flowered bellwort (*Uvularia grandiflora*)	E	--	Threats to the habitat of this species (mesic forests, river or streambanks, low floodplain forest, and moist thickets) are changes in local hydrology, human disturbance of the riverbank, and increased nutrient levels in groundwater seepage.

Vertebrate species	**State[1]**	**Federal**	**Notes**

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

Bald Eagle (*Haliaeetus leucocephalus*) SC -- Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

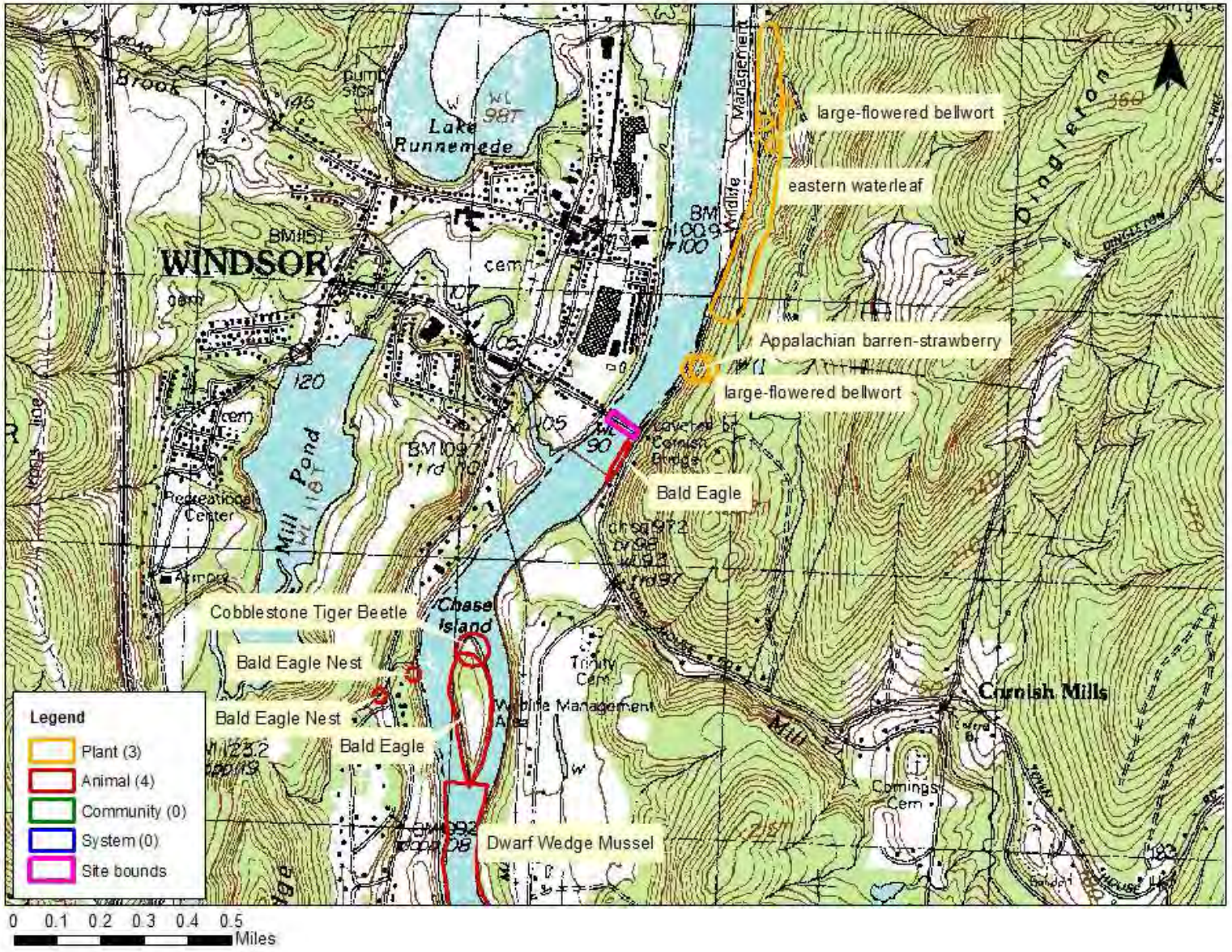
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB19-1049



New Hampshire Natural Heritage Bureau - Animal Record

Cobblestone Tiger Beetle (*Cicindela marginipennis*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Imperiled due to rarity or vulnerability
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:

Detailed Description: 2006: 3-4 individuals.1993: 26 individuals in 500m transect. 1989: 125-250 estimated individulas (by strip census). 1984: Ca. 20 individuals.
General Area: 1993: NNE High-energy riverbank community.
General Comments:
Management Comments:

Location

Survey Site Name: Chase Island
Managed By: CRWC Tract

County: Sullivan
Town(s): Cornish
Size: 2.8 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: Chase Island. Cobblestone area of island, on upstream portion.

Dates documented

First reported:	1984	Last reported:	2006-07-07

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Dwarf Wedge Mussel (*Alasmidonta heterodon*)

Legal Status		Conservation Status	
Federal:	Listed Endangered	Global:	Critically imperiled due to rarity or vulnerability
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank:	Not ranked
Comments on Rank:	
Detailed Description:	2013: 10 mussels observed at 5 separate locations. 2011: A single mussel observed at 5 separate locations. 2007: A single mussel observed at 2 separate locations.
General Area:	2011: Mussels were found at scattered locations along approximately 26 km stretch of Connecticut River north of the confluence with the Black River in Vermont.
General Comments:	2011: Mussels were also observed nearby in the Black River, a tributary of the Connecticut in Vermont.
Management Comments:	

Location

Survey Site Name:	Connecticut River, above Black River confluence
Managed By:	Jarvis Island
County:	Sullivan
Town(s):	Charlestown
Size:	1272.9 acres
Elevation:	

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions:

Dates documented

First reported:	2007-06-09	Last reported:	2013-10-01

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

New Hampshire Natural Heritage Bureau - Plant Record

Appalachian barren-strawberry (*Geum fragarioides*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank: Good landscape condition but small population.

Detailed Description: 2010: 11-50 vegetative stems, normal vigor, in a 4-square-meter area.2003: Several plants identified, but thorough survey not conducted.1940: Specimen collected.

General Area: 2010: Top of bank where sun breaks through on an old logging road. Dominant species is American beech (*Fagus grandifolia*). Associated species include blue-stemmed goldenrod (*Solidago caesia*), Christmas fern (*Polystichum acrostichoides*), and northern lady fern (*Athyrium filix-femina* var. *angustum*).1940: Partly shaded bank.

General Comments:

Management Comments:

Location

Survey Site Name: Covered Bridge
Managed By: Bulkeley Rev. Trust, Grace M

County: Sullivan
Town(s): Cornish
Size: 1.9 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2010: From I-91N take exit 8 toward US-5/Ascutney/VT-12/Windsor, turn slight right onto VT-131E. VT-131 E becomes VT-103E/VT-12 S (crossing into NH). Turn left onto NH-12A. Park at second parking pull-out just before Slade Hill Drive. Walk south until you are about 50 feet from the sign for the covered bridge. There is an old woods road uphill from a mowed embankment. Proceed about 70 feet up the woods road (43.4757N, 72.38019W).2003: About 0.25 miles north of the covered bridge over the Connecticut River, on hillside above road. [Sketch indicates: from sign for the covered bridge on the west side of the road, go 50 ft. north to an old, barely discernable woods road on the east side of the road that starts between two large maple trees and slants NE up the slope. The plants start on the road bank somewhat north of the road entry and occur uphill to slightly past the road.]1940: Cornish. Partly shaded bank of Connecticut River.

Dates documented

First reported:	1940-05-19	Last reported:	2010-05-15

New Hampshire Natural Heritage Bureau - Plant Record

eastern waterleaf (*Hydrophyllum virginianum*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2009: Searched for but not found (8/1).2002: No details.2001: Hundreds of plants. Thickly clumped in some areas, scattered single plants in others.2000: Plants scattered throughout lower slope along road, all vegetative only. 1983: 51-100 plants, in flower, most plants had set seed. 1957, 1952: Specimen collected.

General Area: 2009 (Not found): As previously noted, garlic mustard (*Alliaria petiolata*) now invasive.2001: Associated species include *Alliaria officinalis* (garlic-mustard), *Staphylea trifolia* (bladdernut), and *Dicentra* [*cucullaria*] (Dutchman's breeches).2000: Dominant or characteristic species were *Dicentra* sp. (Dutchman's breechs or squirrel corn), *Aquilegia canadensis* (wild columbine), *Arisaema triphyllum* (Jack-in-the-pulpit), [*Anemone acutiloba*] (acute-lobed hepatica), *Adiantum pedatum* (northern maidenhair fern), *Polystichum acrostichoides* (Christmas fern), and *Actaea rubra* (red baneberry).1983: Deep soil on moist lower slope of steep shale talus, near edge of woods above roadside ditch, shaded; moist woodlands on steep slope of limey slate. 1957: Woods, rich deciduous area. 1952: Moist woodlands on steep west slope. Limey slate.

General Comments: 2001: Seems well-established, but plants do not look as healthy as others observed elsewhere.2000: Plants were not as healthy or vigorous as population studied farther south along Rte. 12A in 1999. Suggest going back with a partner to count and measure area.

Management Comments:

Location

Survey Site Name: Dingleton Hill
Managed By: Bulkeley Rev. Trust, Grace M

County: Sullivan
Town(s): Cornish
Size: 24.4 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2009 (Not Found): From I-91N take exit 8 toward US-5/Ascutney/VT-12/Windsor, turn slight right onto VT-131E. VT-131 E becomes VT-103E/VT-12 S (Crossing into NH). Turn left onto NH-12A. Turn right onto Slade Hill Drive.2001: East side of Route 12A about 200 ft. north of Slade Hill Road and 200 ft. south of Slade Hill Road.1983: Across river from Windsor, VT. East of Rte. 12A on lower slopes of hill.1957: Dingleton Hill. Above Cornish Bridge.1952: On steep west slope, east bank of Connecticut River bank 0.5 mile north of Cornish Bridge.

Dates documented

First reported: 1952 Last reported: 2002-05

New Hampshire Natural Heritage Bureau - Plant Record

large-flowered bellwort (*Uvularia grandiflora*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank:	Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:	2009: possibly increasing vigorous population in a location not likely to be developed.
Detailed Description:	2009: Total of 34 stems, 55% in flower. Area A2: 13 stems in two clusters (11 and 2). Area B: 21 stems.2003: Area C: 11-50 plants found with immature and mature fruit. 2002: Area A1: 3 plants (3-4 stems each), some in flower. Area B: About 120 mature stems flowering or fruiting and 18 immature or vegetative stems.2000: Area C and points north: Searched for but not found (May-June). 1999: A few plants found, but not positively identified (not in bloom). 1979, 1965, 1957, 1940: Specimen collected.
General Area:	2009: Area A and B: similar description. Invasive species: *Alliaria petiolata* (garlic mustard) growing close to Area A2.2003: Area C: ***Rich mesic forest***.2002: Area A: ***Rich mesic*** woods. Associated species include *Acer spicatum* (mountain maple), *Caulophyllum thalictroides* (blue cohosh), *Adiantum pedatum* (northern maidenhair fern), *Arisaema triphyllum* (Jack-in-the-pulpit), *Rubus odoratus* (purple-flowering raspberry), *Asarum canadense* (wild ginger), and *Mitella diphylla* (two-leaved miterwort). Area B: **Rich mesic** woods. Dominant/characteristic species are *Acer saccharum* (sugar maple), *Tilia americana* (basswood), and *Ostrya virginiana* (ironwood). Associated species include *Adiantum pedatum* (northern maidenhair fern), *Solidago flexicaulis* (zigzag goldenrod), *Tilia americana* (basswood), *Acer saccharum* (sugar maple), *Hydrophyllum canadense* [*virginianum*? (northern waterleaf)], *Thalictrum dioicum* (early meadow-rue), *Actaea rubra* (red baneberry), *Hepatica* sp. (liverwort), and *Fraxinus americana* (white ash).1979: Rich woods.
General Comments:	2003: Several plants were identified but not attempt was made to do a proper survey of *Uvularia* in this area. 2000: Searched east side of Rte. 12A, just south of juncture of Slade Hill Road and also from north of Slade Hill Road to St. Gaudens. 1999: Very steep hill. Not possible to climb in some areas.
Management Comments:	2009: Areas A and B: garlic mustard growing nearby may need to be pulled in the future but does not appear to be an immediate threat.2002: Area C: Beware of invasives. Garlic mustard, alien honeysuckle, and buckthorn are seen at woodland borders. Road widening could also be a threat.

Location

Survey Site Name:	Dingleton Hill
Managed By:	Bulkeley Rev. Trust, Grace M
County:	Sullivan
Town(s):	Cornish
Size:	3.3 acres
Elevation:	

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2009: Slade Hill Rd. about two-thirds up the hill. Area A2: about 4 ft. uphill of the road at a point 20 ft. before a culvert (if travelling uphill). Area B: continue uphill along the road for about 150 ft. past the culvert. Plants are near a very crooked tree on the downhill side of the road.2003: Area C: 0.25 mile north of the Cornish-Windsor covered bridge there is a pullout able to hold five cars. An area ca 400 feet by 0.25 mile was covered. Large-flowered bellwort was found in the vicinity of a bowl which extends up and out from the parking pullout area. 2002: Area A1: On the east side of Slade Hill Rd., off of Rte. 12A. About 2/3 up the first leg of the hill, about 10-25 ft. below a culvert. Area

B: From the junction of Rte. 12A and Slade Hill Rd. walk north ca. 300 ft. At the 50-mph highway sign, enter the woods at a right angle to the road. Plants are a few feet into the woods, and can be seen from the road when in bloom. 1979: Wooded slope on Rte. 12A, 1.0 miles north of Cornish Bridge.1965: Roadside below St. Gaudens.1940: Shaded bank by Connecticut River.

Dates documented

First reported:	1940	Last reported:	2009-05-09

New Hampshire Natural Heritage Bureau - Animal Record

Bald Eagle (*Haliaeetus leucocephalus*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Special Concern	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2017: Nest 2: 1 chick fledged.
2016: Nest 2: 2 chicks fledged.
2015: Nest 2: 2 chicks fledged.
2014: Nest 1: 2 chicks fledged.
2013: Nest 1: 2 chicks fledged.
2012: Nest 1: 1 chick fledged.
2011: Nest 1: 2 chicks fledged.
General Area:
General Comments: 2011: Nest in Vermont, but breeding territory probably extends into New Hampshire.
Management Comments:

Location

Survey Site Name: Chase Island
Managed By:

County:
Town(s):
Size: .9 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2011: Nest 1: [Along Rte. 5 in Windsor, VT, just west of Chase Island].

Dates documented

First reported: 2011 Last reported: 2017

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Bald Eagle (*Haliaeetus leucocephalus*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Special Concern	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2012: 2 eagles observed at a single location and 1 eagle observed at a separate location on 1/7.2011: 1 eagle observed on 1/8. 1 eagle observed on 2/26.2008: 1 eagle observed on 1/12.
General Area:
General Comments:
Management Comments:

Location

Survey Site Name: Connecticut River, Claremont
Managed By: Hubbard Island

County: Sullivan
Town(s): Claremont
Size: 176.1 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: From the Chase Island in the Connecticut River south to Hubbard Island.

Dates documented

First reported:	2008-01-12	Last reported:	2012-01-07

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

Hall, James

From: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Sent: Tuesday, October 20, 2015 12:19 PM
To: Faulkner, Rob
Cc: Susi_vonOettingen@fws.gov
Subject: FW: Cornish - Windsor Covered bridge NHB15-1682
Attachments: Plan Sheets.pdf; Presentation Photos.pdf; NHB15-1682_Parrelli.pdf; Cornish Covered Bridge Project description.pdf; Cornish 064-108 Areial Natural Resources Map - Rds.pdf

Hello Robert,

You will have to contact Susi von Oettingen at the USFWS (cc'd on this email) regarding the dwarf wedgemussel as it is also federally endangered. Please let me know what she has to say about them for my review. In the meantime. I'll take a look at the other species and let you know if I need anything else from you.

Thanks,

Kim Tuttle
Certified Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Faulkner, Rob [mailto:RFaulkner@chacompanies.com]
Sent: Tuesday, October 20, 2015 12:06 PM
To: Lamb, Amy; Tuttle, Kim
Cc: Taylor, Matthew; Ashford, Bill
Subject: Cornish - Windsor Covered bridge

Amy and Kim– last spring we requested a NHB screening for a proposed scour countermeasure project that we are doing for NHDOT at the Cornish - Windsor Bridge. That screening (attached) indicated the possible presence of several threatened / endangered species and I was hoping to discuss with you actions moving forward through design and ultimately construction. I've attached several reference documents and once you review, if you could let me know when a good time to give you a call would be.

If you have any questions in the meantime, please give me a call.

Robert J. Faulkner, PE*
Vice President, Transportation New England Region Market Leader
CHA ~ *design/construction solutions*
Office: 603-354-7998, Ext. 229
Cell: 802-236-0009
rfaulkner@chacompanies.com
www.chacompanies.com
Follow us on Twitter, LinkedIn, and Facebook!

*CT, MA, ME, MI, NH, VT

Hall, James

From: Ferguson, Mark <Mark.Ferguson@vermont.gov>
Sent: Monday, March 27, 2017 4:12 PM
To: Greaves IV, John
Cc: Kart, Jon
Subject: RE: T&E Spp. Info Request for Cornish Toll Road Covered Bridge over Connecticut River, Windsor, VT

Hello John,
Thanks for checking with us. That portion of the river does support a population of the state- and federally-endangered dwarf wedgemussel, as Jon Kart mentioned. I'm not familiar with the details of your project, but it will likely need to be reviewed by the VT Fish and Wildlife Dept, New Hampshire Fish & Game, and the U.S. Fish and Wildlife Service to determine if there could be impacts to this population. It may need endangered species permits from the two states. You can contact Jon or I to find out what is needed for a Vermont endangered species permit. The people to contact for New Hampshire and the USFWS are:

Michael Marchand michael.marchand@wildlife.nh.gov
Susi von Oettingen susi_vonoettingen@fws.gov

Mark Ferguson
Natural Heritage Zoologist
Vermont Department of Fish & Wildlife
802-279-3422

From: Kart, Jon
Sent: Monday, March 27, 2017 3:30 PM
To: JGreavesIV@chacompanies.com
Cc: Ferguson, Mark <Mark.Ferguson@vermont.gov>
Subject: FW: T&E Spp. Info Request for Cornish Toll Road Covered Bridge over Connecticut River, Windsor, VT

Hello John, thank you for providing the site map for your project at the Cornish-Windsor Toll Road Bridge in Windsor. That section of the Connecticut River is home to the dwarf wedgemussel which is endangered in Vermont, New Hampshire and at the federal levels too. I do not see sign of other listed species at that location, but I am passing your query on to our mussel and invertebrate specialist Mark Ferguson (copied) so that he can take a closer look.

The Vermont Agency of Natural Resources does have an online map tool that can help you identify a variety of potential regulatory issues for projects, including the presence of listed species. It's the Natural Resources Atlas (http://anrmaps.vermont.gov/websites/anra5/). To check for the presence of listed species you'd navigate to the project area. Then in the 'map layers' section in the left column of the screen click the '+' sign to open the Fish & Wildlife data layers. When it opens click on the "Rare, Threatened and Endangered Species" data layer. If rare, threatened or endangered species are present you'll see red and/or green overlays appear. You can click on the overlays to get more information.

For outside viewers the reports will not include the names of the specific threatened or endangered species present to prevent illegal collection.

I hope this helps. Feel free to contact me any time if I can be of assistance.

Jon

Jon Kart ● Vermont Fish & Wildlife Department
p: 802-595-1810 ● jon.kart@vermont.gov
1 National Life Drive, Davis 2, Montpelier, VT 05620-3702
See Vermont's Wildlife Action Plan
Explore BioFinder biofinder.vermont.gov
Click for permit applications

From: Greaves IV, John [mailto:JGreavesIV@chacompanies.com]
Sent: Monday, March 27, 2017 12:39 PM
To: Kart, Jon <Jon.Kart@vermont.gov>
Subject: T&E Spp. Info Request for Cornish Toll Road Covered Bridge over Connecticut River, Windsor, VT

Jon,

Thank you for returning my call.

We are requesting rare, threatened and endangered species information for the Cornish Toll Road Covered Bridge (Bridge Street) over the Connecticut River project in Windsor, VT. This information will be used in NEPA documentation. Please refer to the attached location map (Lat: 43° 28' 25.3704" Long: -72° 23' 2.292").

For future reference, is there an online tool that can be used to generate a species list, or is contacting you directly the current protocol?

The project involves the installation of protective scour countermeasures at the Cornish Toll Road Covered Bridge (Bridge Street) over the Connecticut River in the Towns of Cornish, NH and Windsor, VT. This 2 span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and piers.

Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill is individual angular stone approximately 2-3' average diameter which is proposed at selected bank areas on both sides of the river (see Plan sheet). The second is Partially Grouted Riprap (PGR), which is proposed to be installed in front of both abutments. PGR minimizes the impact to the placement area by using less/smaller diameter material (riprap) which requires less channel excavation/preparation and partially grouting the voids between the stones with a special high slump concrete mix. The result is a larger but thinner interlocking stable layer of stones designed to resist flood velocities much higher than with un-grouted stone.

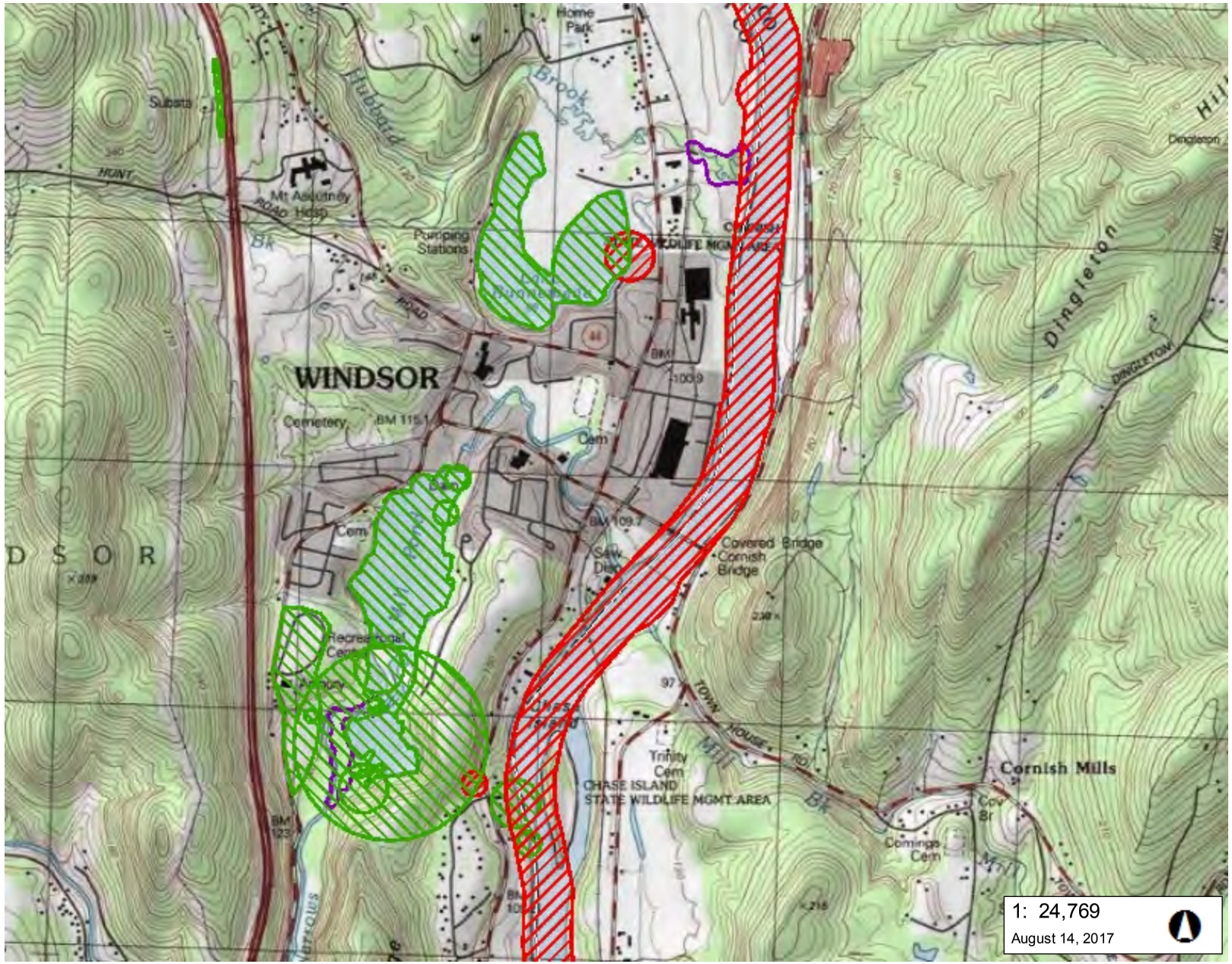
Thank you,

John W. Greaves IV
Senior Scientist, CWS*
CHA ~ *design/construction solutions*
Office: (518) 453-8251
jgreavesiv@chacompanies.com
www.chacompanies.com
*NH

Vermont Agency of Natural Resources

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Rare Threatened Endangered
  - Threatened or Endangered
  - Rare
- Significant Natural Community
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

4,128.0 0 2,064.00 4,128.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 2064 Ft. 1cm = 248 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: November 20, 2019
Consultation Code: 05E1NE00-2017-SLI-1156
Event Code: 05E1NE00-2020-E-01402
Project Name: 25067 Cornish Toll Road Covered Bridge (Bridge Street) over the Connecticut River

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1156

Event Code: 05E1NE00-2020-E-01402

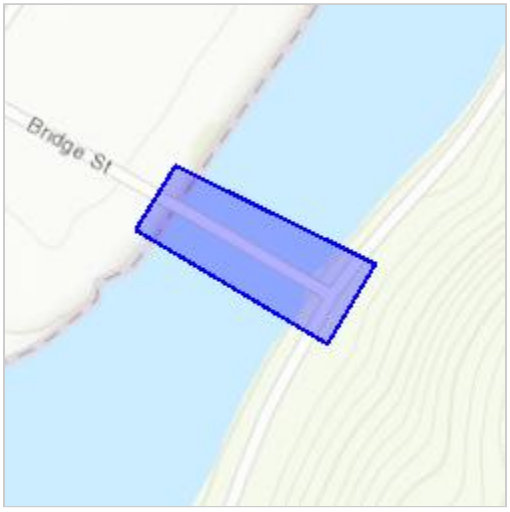
Project Name: 25067 Cornish Toll Road Covered Bridge (Bridge Street) over the Connecticut River

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: The project involves installation of protective scour countermeasures at the existing bridge.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.47361325614153N72.3836917894417W



Counties: Sullivan, NH | Windsor, VT

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Dwarf Wedgemussel *Alasmidonta heterodon* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/784	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

July 24, 2018

Rebecca Martin
Senior Environmental Manager
New Hampshire Department of Transportation
7 Hazen Drive
New Hampshire, NH 03302

Ref: Cornish Toll Road Covered Bridge, Cornish, New Hampshire and Windsor, Vermont
(in reply refer to TAILS # 2017-I-2623)

Dear Ms. Martin:

This responds to your request, dated June 28, 2018, and received in our office on June 29, 2018, for our concurrence with your determination that the New Hampshire Department of Transportation's (NHDOT) proposed Cornish Toll Road covered bridge project (Project) may affect, but is not likely to adversely affect, the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*). Your request and our response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended (87 Stat. 884, as amended; 16 U.S.C 1531, et seq.) (ESA). We understand the NHDOT is acting as a non-Federal representative of the Federal Highway Administration (FHWA) for the purpose of consultation under section 7.

The NHDOT proposes to armor the base of the abutments and piers at the Cornish Toll Road covered bridge, which spans the Connecticut River between Cornish, New Hampshire, and Windsor, Vermont. The purpose of the Project is to combat ongoing erosion that is causing bridge scour and could lead to a collapse of the bridge. The work will take 2 months to complete, and it is proposed to begin in June of 2019.

The Project would require cofferdams around the bridge abutments but would not require any dewatering of the project area. The cofferdams would be upstream of a dwarf wedgemussel occurrence, so the NHDOT assessed whether the cofferdams would cause hydraulic impacts on the habitat where a dwarf wedgemussel was found. The NHDOT concluded that habitat conditions for dwarf wedgemussel would not be measurably different while the cofferdams are in place, and no adverse hydraulic impacts would occur along or downstream of the cofferdams.

Following a survey plan that was reviewed by the U.S. Fish and Wildlife Service and the New Hampshire Fish and Game Department, a species expert conducted a survey on September 19 to 21, 2017. The survey area extended 50 meters upstream and 100 meters downstream of the centerline of the bridge, and from the Vermont shoreline to the New Hampshire shoreline. The surveyor found a single dwarf wedgemussel on the Vermont side of the River; however, he reported the individual was found in atypical habitat for the species and suggested it is possible this individual is a remnant from an extirpated population or that it may have washed into the area from upstream. .

The NHDOT will implement the following measures to avoid adverse effects to dwarf wedgemussels from the proposed project:

- erosion and sedimentation best management practices will be executed to avoid sedimentation of dwarf wedgemussels and their habitat;
- a crane will be placed at the top of bank and reach out over the bank to load the barge, eliminating the need to cut an access road down the steep bank, and reducing the risk of erosion and sedimentation impacts; and
- the NHDOT will designate a 25-foot radius area of "non-disturbance" around the location where the dwarf wedgemussel was found. The barge will travel around the non-disturbance area to avoid fetch and prop wash impacting the dwarf wedgemussel.

We concur with your determination that the proposed project may affect, but is not likely to adversely affect, the dwarf wedgemussel. Our concurrence is based on the following:

- suitable dwarf wedgemussel habitat does not occur in the project area and only one individual was found. We expect the chance of additional dwarf wedgemussels occurring in the project area is discountable; and
- hydraulic changes caused by the cofferdams and other project activities would have insignificant, if any, impacts on dwarf wedgemussels and their habitat.

Further consultation with us under section 7 of the ESA is not required at this time. If the proposed action changes in any way such that it may affect a listed species in a manner not previously analyzed or if new information reveals the presence of additional listed species that may be affected by the Project, the NHDOT or FHWA should contact us immediately and suspend activities that may affect those species until the appropriate level of consultation is completed with our office. Thank you for your cooperation, and please contact Maria Tur of this office at (603) 227-6419 if you have questions or need further assistance.

Sincerely yours,

Thomas R Chapman
Supervisor
New England Field Office

cc: Jamie Sikora - Jamie.Sikora@dot.gov
Michael Hicks - Michael.C.Hicks@usace.army.mil
Ron Crickard - Ronald.Crickard@dot.nh.gov
Joseph Adams - Joseph.Adams@dot.nh.gov
Reading file
ES: MTur:7-24-18:603-223-2541

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

August 29, 2017

Ronald Crickard
Bureau of Environment
NH Department of Transportation
7 Hazen Drive
P.O. Box 483
Concord, New Hampshire 03302-0483

Dear Mr. Crickard:

Re: Cornish Toll Road Covered Bridge, Project No. 25067, Cornish, New Hampshire
TAILS: 05E1NE00-2017-F-1156

The U.S. Fish and Wildlife Service (Service) is responding to your request, dated August 21, 2017, to verify that the Cornish Toll Road Covered Bridge Project (Project) spanning the Connecticut River in Cornish, New Hampshire and Windsor, Vermont may rely on the December 15, 2016, Programmatic Biological Opinion (BO) for federally funded or approved transportation projects that may affect the northern long-eared bat (*Myotis septentrionalis*) (NLEB). We received your request and the associated Project Submittal Form on August 23, 2017.

This letter provides the Service's response as to whether the Project may rely on the BO to comply with section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) for its effects to the NLEB.

The New Hampshire Department of Transportation (NHDOT), as the non-Federal agency representative for the Federal Transportation Agency, has determined that the Project may affect, and is likely to adversely affect the NLEB. The Project proposes to install partially grouted riprap for scour protection around the bridge substructures, and build a short temporary access road for a barge-mounted mooring area. The bridge was assessed for potential bat use; no evidence of bat use was documented. Less than 0.25 acre of tree clearing (approximately 15 trees) will be required for the Project to construct the access point and will likely occur during the bat active season. NHDOT also determined the Project may rely on the programmatic BO to comply with section 7(a)(2) of the ESA, because the Project meets the conditions outlined in the BO and all tree clearing related to the proposed bridgework will occur farther than 0.25 mile

from documented roosts and farther than 0.5 mile from any known hibernacula. The Service reviewed the Project Submittal Form and concurs with NHDOT's determination. This concurrence concludes your ESA section 7 responsibilities relative to this species for this Project, subject to the Reinitiation Notice below.

Conclusion

The Service has reviewed the effects of the proposed Project, which include the NHDOT's commitment to implement the impact avoidance, minimization, and compensation measures as indicated on the Project Submittal Form. We confirm that the proposed Project's effects are consistent with those analyzed in the BO. The Service has determined that the Project is consistent with the BO's conservation measures, and the scope of the program analyzed in the BO is not likely to jeopardize the continued existence of the NLEB. In coordination with your agency, the Federal Highway Administration, and the other sponsoring Federal Transportation Agencies, the Service will reevaluate this conclusion annually in light of any new pertinent information under the adaptive management provisions of the BO.

Incidental Take of the Northern Long-eared Bat

The Service anticipates that tree removal associated with the proposed Project will cause incidental take of the NLEB. However, the Project is consistent with the BO, and such projects will not cause take of NLEBs that is prohibited under the final 4(d) rule for this species (50 CFR §17.40(o)). Therefore, this taking does not require exemption from the Service.

Reporting Dead or Injured Bats

The NHDOT, the Federal Highway Administration, its State/local cooperators, and any contractors must take care when handling dead or injured NLEBs that are found at the project site, in order to preserve biological material in the best possible condition and to protect the handler from exposure to diseases, such as rabies. Project personnel are responsible for ensuring that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Reporting the discovery of dead or injured listed species is required in all cases to enable the Service to determine whether the level of incidental take exempted by this BO is exceeded, and to ensure that the terms and conditions are appropriate and effective. Parties finding a dead, injured, or sick specimen of any endangered or threatened species must promptly notify the Service's New England Field Office.

Reinitiation Notice

This letter concludes consultation for the proposed Project, which qualifies for inclusion in the BO issued to the Federal Transportation Agencies. To maintain this inclusion, a reinitiation of this project-level consultation is required where the Federal Highway Administration's discretionary involvement or control over the Project has been retained (or is authorized by law) and if:

1. new information reveals that the Project may affect listed species or critical habitat in a manner or to an extent not considered in the BO;
2. the Project is subsequently modified in a manner that causes an effect to listed species or designated critical habitat not considered in the BO; or
3. a new species is listed or critical habitat designated that the Project may affect.

In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation.

We appreciate your continued efforts to ensure that this Project is fully consistent with all applicable provisions of the BO. If you have any questions regarding our response, or if you need additional information, please contact Susi von Oettingen of this office at 603-227-6418.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

US Coast Guard Correspondence

U.S. Department of Homeland Security

United States Coast Guard

Commander
First Coast Guard District

One South Street
Battery Park Building
New York, NY 10004-1466
Staff Symbol: dpb
Phone: (212) 514-4331
Fax: (212) 514-4337

16211
October 4, 2018

Federal Highway Administration-NH Division
Attn: Mr. Jamison Sikora
Environmental Program Manager
53 Pleasant Street, Suite 2200
Concord, NH 03301

Re: NV-1004: Cornish Toll Bridge Road over Connecticut River

Dear Mr. Sikora,

This is in response to your letter dated September 24, 2018 invoking 23 U.S.C. Section 144 (c) for the referenced waterway construction project. Based upon information you have provided, we concur with your determination.

Although this project will not require a bridge permit, other areas of Coast Guard jurisdiction apply. The following stipulations must be met:

a. The lowest portion of the superstructure of the bridge across the waterway should clear high water pursuant to 33 CFR 115.70.

b. We have determined that bridge navigational lighting or signals under 33 CFR Part 118 will not be required at this time, however, the Coast Guard reserves the right to require lighting or signals at any time in the future should nighttime navigation increase in the vicinity of, or through the bridge.

c. Any spillage of oil or oil-based products during construction must be promptly reported to the Coast Guard by calling 1-800-424-8802.

d. This approval does not relieve the bridge owner of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance for the proposed bridge.

If you have any further questions feel free to contact this office at the number above.

Sincerely,

C. J. BISIGNANO
Supervisory Bridge Management Specialist
U.S. Coast Guard
By direction

E-Copy: 1) CG Sector Northern New England
2) USACE, New England Division, Navigation Section
3) Mr. Gene Popien, NHDOT

Section 106 Effect memo

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

CORNISH, NH-WINDSOR, VT
X-A003(035)
25067
RPR 6775

No Adverse Effect Memo

Pursuant to the meeting and discussions on July 16, 2015, and for the purpose of compliance with regulations of the National Historic Preservation Act and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historical and archaeological resources with plans to install countermeasures of material designed to resist scour around abutments and piers of the Cornish-Windsor Toll Bridge Road Covered Bridge (064/108) that spans the Connecticut River between Cornish, New Hampshire and Windsor, Vermont. The Vermont Agency of Transportation (VTrans) has reviewed this project according to the standards and procedures detailed in the 2000 Programmatic Agreement (PA) regarding implementation of the Federal Highway Administration's (FHWA) Federal-Aid Highway Program in Vermont and the corresponding Manual of Standards and Guidelines (Manual).

Project Description:
The project consists of scour countermeasure installation at the Cornish-Windsor Toll Bridge Road Covered Bridge that carries Bridge Street over the Connecticut River between Cornish, New Hampshire and Windsor, Vermont. The proposed countermeasures to be used at this location include placement of riprap at the pier and select bank locations, and Partially Grouted Riprap (PRG) in front of both abutments. Temporary staging and access to all three substructure units is proposed from a state-owned parking area on the downstream southeast quadrant to construct a temporary riverbank bulkhead to accommodate marine barges and boats. Additional river access may be in Windsor, near the abutment, or from the New Hampshire Fish and Game property located north of the bridge crossing. Exact locations will be coordinated during construction.

Analysis:
Based on a review pursuant to 36 CFR 800.4 of the architectural and/or historical significance of the resources in the project area, we determined that the Cornish-Windsor Covered Bridge between Bridge Street and NH 12A is listed on the National Register of Historic Places.

A Phase IA archaeological sensitivity assessment was conducted for the project area and walkover and subsurface sampling confirmed the absence of archaeological resources and the presence of disturbed soils in the proposed areas of impact (IAC 2015). Timber cribbing and pier foundation remnants of the 1825 three-span bridge structure have been seen on the river bed between the central pier and abutments of the current bridge during low water. The current plan avoids impacts to these areas and will be stated so in the plans; however if they are visible during construction an archaeologist will document and record their locations on an archaeological site form. In 2017 an additional Phase IA archaeological survey was conducted in the Town of Windsor for access and staging areas. It was recommended that no additional survey

impacts to these areas and will be stated so in the plans; however if they are visible during construction an archaeologist will document and record their locations on an archaeological site form. In 2017 an additional Phase IA archaeological survey was conducted in the Town of Windsor for access and staging areas. It was recommended that no additional survey was necessary. The NHDOT and VTrans archaeologists and NHDHR Archaeologist/Review and Compliance Coordinator concurred with these determinations and recommendations.

Public Consultation:
Outreach letters advertising public meetings were sent by the NHDOT to several entities within the Town of Cornish including Selectmen, Town Clerk, Cornish Historical Society, Cornish Conservation Commission, as well as entities within the Town of Windsor, including Selectmen, Town Manager and Planning Board. The letter was also transmitted to several NH and VT State Officials. Public informational meetings were held on July 31, 2015 in Cornish, New Hampshire and on August 8, 2017 in Windsor, Vermont. No requests for consulting party status were received.

Determination of Effect:
Applying the criteria of effect at 36 CFR 800.5, we have mutually agreed that the proposed scour countermeasure materials to be used and access road locations will not adversely affect the Cornish Toll Road Covered Bridge, as these actions do not impact any character defining features of the bridge. It was noted that the visible grout from the Partially Grouted Riprap would be limited to at or just below the rock line at the face of the granite abutments; this will limit any potential visual impacts.

Section 4(f) (to be completed by FHWA)	*There Will Be:*	☒ No 4(f);	☐ Programmatic 4(f);	☐ Full 4 (f); or
	☐ **A finding of *de minimis* 4(f) impact as stated:** In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with 23 CFR 774.3, FHWA intends to, and by signature below, does make a finding of *de minimis* impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the *de minimis* findings. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.			

In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

STATE OF NEW HAMPSHIRE:

for Patrick Bauer, Administrator — Date 1/14/2019
Federal Highway Administration

STATE OF VERMONT:

Kenneth R. Sikora, Jr. — Date 10/5/2018
Environmental Program Manager
Federal Highway Administrator—
Vermont Division

Concurred with by:

Elizabeth H. Muzzey — Date
State Historic Preservation Officer
NH Division of Historical Resources

E-SIGNED by Laura Trieschmann on 2018-11-30 15:59:40 UTC

Laura Trieschmann — Date
State Historic Preservation Officer
Vermont Division for Historic Preservation

Jill Edelmann — 12/19/2018 — Date
Cultural Resources Manager
NH Department of Transportation

Judith Williams Ehrlich — 8/8/2018 — Date
VTrans Historic Preservation Officer
VT Agency of Transportation

Jeannine Russell — 8/6/2018 — Date
VTrans Archaeology Officer
VTrans Agency of Transportation

c.c. Chris St. Louis, NHDHR — Jamie Sikora, FHWA
Robert Landry, NHDOT — Dan Landry, VTrans
Ron Crickard, NHDOT — Chris Baker, VTrans
S:\Environment\PROJECTS\CORNISH\25067\Cultural\Cornish Windsor 25067 No Adverse Effect FHWA.doc

Army Corps Secondary Impacts Checklist (Appendix B)

US Army Corps of Engineers ®
New England District

New Hampshire General Permits (GPs)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		**X**
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	**X**	
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/. The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.		**X**
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	**N/A**	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	**X**	
2.5 The overall project site is more than 40 acres?		**X**
2.6 What is the area of the previously filled wetlands?	**N/A**	
2.7 What is the area of the proposed fill in wetlands?	**8,262 SQ FT**	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?	**N/A**	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index	**X**	

3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.	**X**	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		**X**
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		**X**
3.5 Are stream crossings designed in accordance with the GC 21?	**N/A**	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	**X**	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		N/A
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review**)** with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.
`

NH Department of Transportation
Cornish, NH – Windsor, VT, 25067

ACOE Appendix B Supplemental Narrative

2.4 Would the project remove part or all of a riparian buffer?

The proposed scour protection will require the removal of approximately 20 trees, as well as groundcover in the immediate vicinity of the existing bridge abutments. The footprint of permanent impacts along the river have been minimized as much as practicable.

3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project?

The NH Natural Heritage Bureau identified occurrences of Federal and State listed plant and wildlife species in the vicinity of the project. No impacts to state listed species are anticipated. The project was reviewed under the FHWA Programmatic Consultation for Northern Long-eared Bat. It was determined that the proposed project may affect, is likely to adversely affect (LAA) northern long-eared bat due to active season tree clearing. The USFWS confirmed that the project is consistent with the Programmatic Biological Opinion and is therefore not likely to jeopardize the continued existence of the northern long-eared bat. A survey was completed for dwarf wedgemussel and the USFWS determined that the project was not likely to adversely effect this species.

3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"?

The Connecticut River is a large warmwater river and has been identified in the NH Wildlife Action Plan as Highest Ranked Habitat in New Hampshire. This habitat type supports a diverse array of both aquatic and terrestrial species and provide important habitat for many diadromous fish species. The proposed project will not adversely impact the important habitat functions and values of the Connecticut River.

4.2 Will compensatory flood storage be provided if the project results in a loss of flood storage?

The proposed scour countermeasures will result in a negligible increase in base flood elevation, in part because long-term scour has removed much of the original material. A hydraulic model was prepared to study the impacts of the proposed action, and it was determined that the effects of the proposed fill on the floodway are negligible and compensatory flood storage is not proposed.

5. For a minor or major project, a copy of the RPR shall be sent to the NH Division of Historical Resources.

The NH Department of Transportation has coordinated with the Vermont Agency of Transportation Historic Preservation Officer (VTrans HPO), VTrans Archaeology Officer, NH State Historic Preservation Office (NH SHPO), and the Federal Highway Administration (FHWA), to locate and identify properties listed in or eligible for the National Register of Historic Places within the project area. Effects on cultural resources were determined based on the Section 106 review process established by the National Historic Preservation Act. It has been determined that the Proposed Action would result in No Adverse Effect.

Photographs

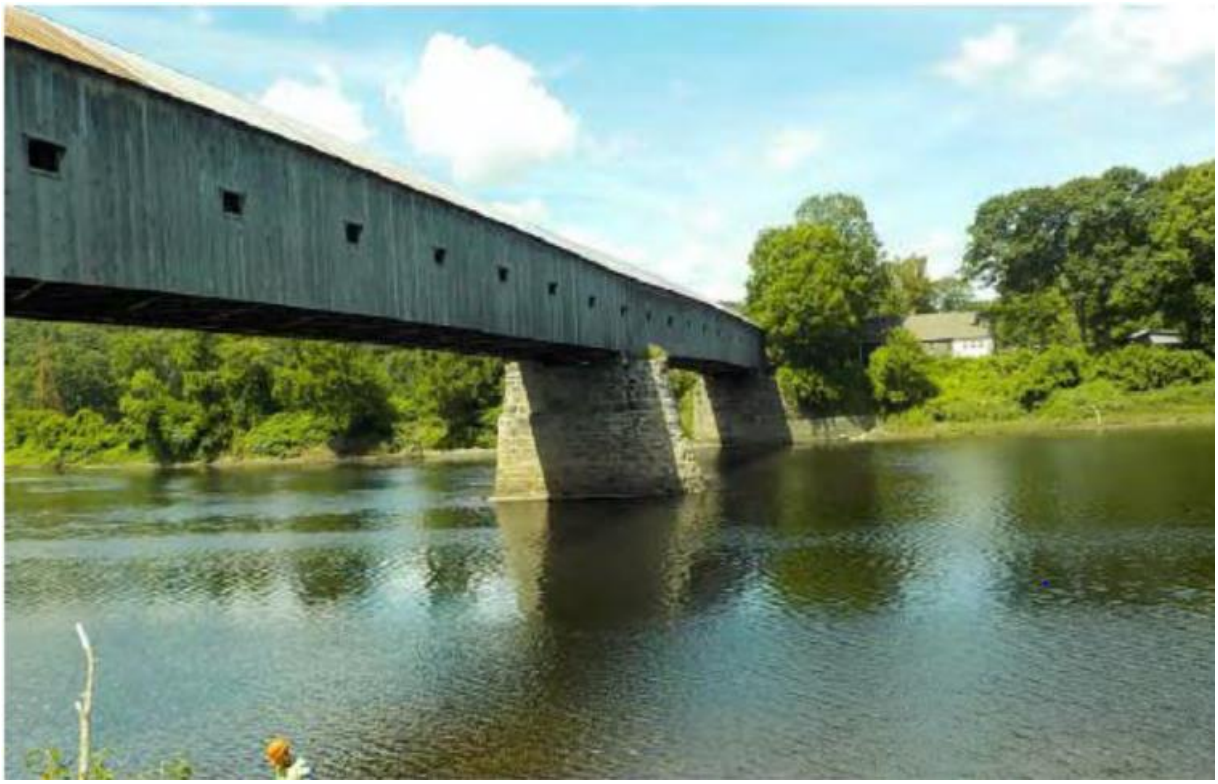


Photo 1: Upstream view of Bridge, showing the Connecticut River and Vermont from the NH side
(Impact Locations B and C)

Photo 2: Downstream view of Bridge, showing the Connecticut River and NH from the Vermont Side
(Impact Locations A, C, D, and E)

Photo 3: Southern face of Bridge from Vermont Side – Western view of Pier (Impact Location C)

Photo 4: Eastern view of Pier (Impact Location C)

Photo 5: Western view of west abutment in Vermont (Impact Location B)

Photo 6: Southern View of east abutment in New Hampshire (Impact Location D)

Photo 7: Northern/upstream view of the Connecticut River bank on the New Hampshire side (Impact Locations A1, A2, D)

Construction Sequence

Cornish-Windsor 25067
Construction Sequence

The overall duration of construction is planned for one construction season. The advertising date is currently August 18, 2020, with construction taking place in 2021. The following summary provides an anticipated construction sequence. However, final sequencing and means and methods will be determined by the Contractor.

- Conduct pre-construction kick off meeting/training with construction team/contractor.

- Install construction signage and warning signs.

- Survey/flag designated work limits.

- Install perimeter erosion and sedimentation control (ESC) measures (filter socks/silt fence) at limits of work and material stockpile areas as applicable. ESC measures need to be maintained throughout construction and post-construction until stabilization (vegetative or structural) has been achieved.

- Install turbidity curtains in around work areas in river.

- Clear, but do not grub, bank area within footprint of the proposed access in the northeast quadrant (New Hampshire), between the river and NH Route 12A.

- Construct barge access: Access to the river will entail placement of temporary fill or a temporary trestle off the bank in the northeast quadrant to provide access to a barge. Access from the bank will be located entirely within Impact Locations A1, A2, and D. A bulkhead, if constructed for barge access, would be located on the upstream side of the bridge in the northeast quadrant, entirely within the limits of impact shown at location D. Any temporary fill required for a bulkhead will be contained within sheet piles.

- Clear and grub vegetation from banks of river within footprint of proposed scour protection. Remove topsoil as applicable and store in designated areas for reuse during final restoration following completion of work.

- Erect cofferdams and turbidity curtains along abutments and turbidity curtains around central pier.

  The intent of the cofferdams and turbidity curtains is to reduce the flow velocities in the vicinity of the pier and abutments to near stagnant and isolate the work area from the river. Excavation, channel bed preparation, stone placement, and grouting are all planned to be completed in a non-dewatered environment. During grouting, the Contractor will be required to monitor surface water outside the contained work area for any pH increases. If pH measurements exceed allowable thresholds, then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

Cornish-Windsor 25067
Construction Sequence

- Excavate “footprints” of areas identified for scour protection. Excavated material will be placed in containers located on a barge.
- Install scour countermeasures (Partially Grouted Riprap and NHDOT Class A & B Stone Fill) as identified on the plans.
- Remove cofferdams along abutments and around central pier following installation of countermeasures as work within specific areas is completed.
- Remove temporary bulkhead and/or temporary trestle in northeast quadrant.
- Grade/restore temporary work spaces to pre-existing conditions. All slopes 3:1 or steeper to be stabilized with bio-degradable erosion control blankets.
- Loam and seed temporary impact areas along banks.
- Remove turbidity curtains.
- Once vegetation is established, perimeter compost filter sock/silt fences should be removed.

Env-Wt 404 Rules

PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

The proposed scour countermeasure protection for the Cornish Toll Road Covered Bridge includes two types of armoring materials to be installed along the left and right abutments and the central pier. These include: 1) Class A & B Stone Fill consisting of individual angular stone approximately 2-3' average diameter, and 2) Partially Grouted Riprap (PGR). The following responses address the requirements of Ent-Wt 404.

Env-Wt 404.01 Least Intrusive Method. Shoreline stabilization shall be by the least intrusive but practical method.

The proposed scour countermeasure protection is necessary due to the bridge being coded as scour critical. The proposed work represents the least intrusive construction method and minimizes riverbank impacts while protecting the abutments and pier. The areas to be stabilized around the existing bridge abutments and pier have been previously disturbed due to bridge construction activities and scour, and the proposed riprap material will be limited to these disturbed areas.

Partially Grouted Riprap was selected as one countermeasure because it allows the use of less stone and smaller diameter stone, which results in the need for less bed preparation. The PGR results in a thinner interlocking layer of stable stones designed to resist higher flood velocities than un-grouted stone.

Env-Wt 404.02 Diversion of Water. Diversion of stormwater run-off often provides effective and low maintenance erosion protection, and shall be used to the maximum extent practical.

No stormwater diversions are proposed for the project. The existing scour/erosion at the bridge abutments and pier has been occurring due to river currents not stormwater run-off.

Env-Wt 404.03 Vegetative Stabilization.
(a) Natural vegetation shall be left intact to the maximum extent possible. If space and soil conditions allow, unstable banks shall be cut back to a flatter slope, seeded, and replanted with native, non-invasive trees and shrubs.

Natural vegetation will be left intact on riverbanks to the maximum extent possible. Temporary bank impacts resulting from construction access will be revegetated. Areas augmented with Class A & B Stone Fill and PGR scour protection countermeasures will not be revegetated due to erosive potential of river flows in these areas.

(b) If space relative to the highest observable tide line, water turbulence, and soil conditions allow, the project shall include vegetation of existing sand beach or dunes or construction of vegetated sand dunes.

N/A

Env-Wt 404.04 Rip-rap.
(a) Rip-rap applications shall be considered only where the applicant demonstrates that anticipated turbulence, flows, restricted space, or similar factors render vegetative and diversion methods physically impractical.

A hydraulic study was conducted for the area to assess turbulence, flow volumes and scour potential. Class A & B Stone Fill and PGR have been selected as the most practicable scour countermeasure protection for the bridge abutments and central pier.

(b) Applications for rip-rap shall include:

(1) Designation of a minimum and maximum stone size;

Class A & B stone – 2-3 feet

(2) Gradation;

	Percentage Distribution by Mass			
Stone Fill	**50%**	**30%**	**10%**	**remainder**
Class A	> 12 ft^3	3- 12 ft^3	1 -3 ft^3	spalls[1]
	50%	**40%**	**remainder**	
Class B	> 3 ft^3	1- 3 ft^3	spalls[1]	

[1] Spalls for filling voids shall be stones/broken rock ranging downward for ≤ 1 ft^3

Table 1: Size and Gradation of Rip-rap 12 inch / PGR			
	% Smaller Than Given Size By Weight	Sieve Size (Inches)	d_{50} * (Inches)
Rip-rap 12 inch	100	15	
	40	12	12
	0	9	

(3) Minimum rip-rap thickness;

Class A & B stone – 2-3 feet as indicated on the plans

(4) Type of bedding for stone;

6" of Item 304.6 Crushed Stone (Very Course) as indicated on the plans.

(5) Cross-section and plan views of the proposed installation;

See attached plans.

(6) Sufficient plans to clearly indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline;

The attached plans display the right-of-way boundary and abutting properties, as well as features of the natural shoreline and surrounding area.

(7) A description of anticipated turbulence, flows, restricted space, or similar factors that would render vegetative and diversion methods physically impractical.

Calculated velocities for the 100 year flood event in the Connecticut River are 5.9 to 6.0 fps. The predicted scour at the pier is in excess of 14 ft. In order to mitigate this scour potential, riprap and PGR are recommended as the most practical protection methods.

(c) Applications to use rip-rap adjacent to great ponds or water bodies where the state holds fee simple ownership shall include a stamped surveyed plan showing the location of the normal high water shoreline and the footprint of the proposed project.

The Connecticut River is listed on the Official List of Public Waters. The project area was surveyed by NH Department of Transportation surveyors.

(d) Rip-rap shall be located shoreward of the normal high water shoreline, where practical, and shall not extend more than 2 feet lakeward of that line at any point.

Class A & B Stone Fill and PGR is required as scour protection countermeasures and must be placed at/above the high water shoreline and extend beyond 2 feet of the lower riverbanks and into the channel.

(e) Stamped engineering plans shall be provided as part of any application for rip-rap in excess of 100 linear feet along the bank of a stream or river.

Stamped engineering plans will be available when the Construction Plans are finalized.

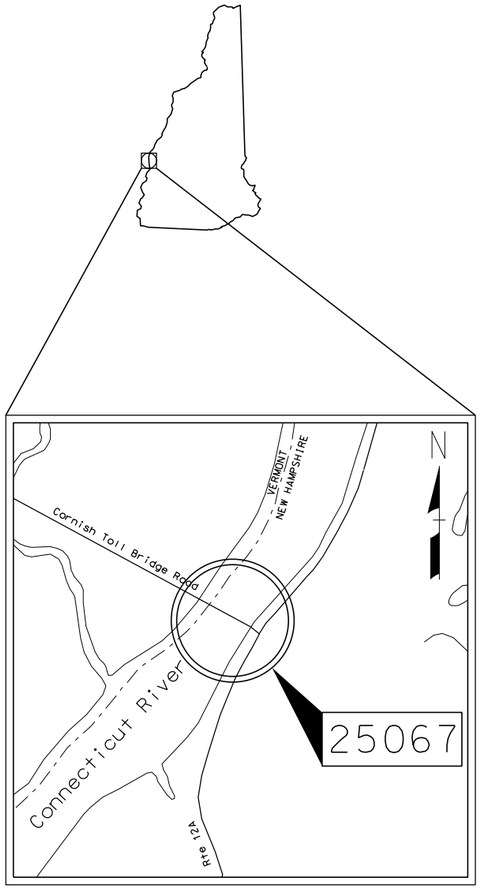
Wetland Impact & Erosion Control Plans

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

WETLAND IMPACT PLANS
FEDERAL AID PROJECT

A0003(035)
NH PROJECT NO.25067
CORNISH TOLL BRIDGE ROAD OVER CONNECTICUT RIVER

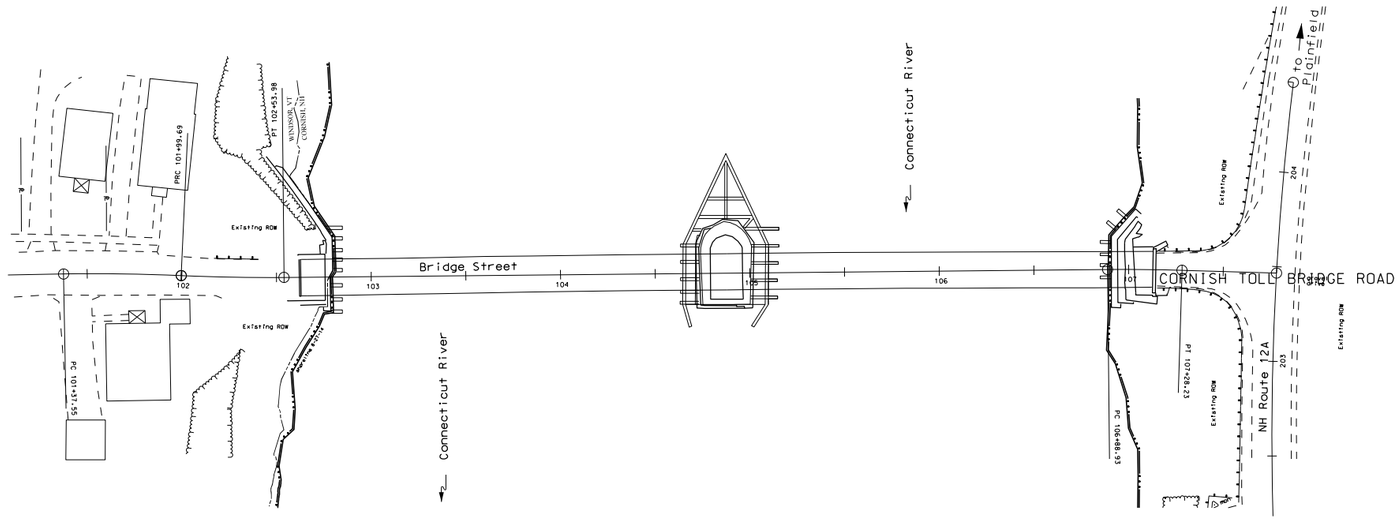
DESCRIPTION OF WORK: INSTALLATION OF SCOUR COUNTERMEASURES AROUND THE PIER AND ALONG BOTH ABUTMENTS.



LOCATION MAP

1/2 1/4 0 1/2 1 mi.

GRAPHIC SCALE



TOWN OF CORNISH, NH - WINDSOR, VT

SULLIVAN COUNTY- WINDSOR COUNTY

SCALE: 1" = 40'

WETLAND IMPACT PLANS

DATE 12/2/2019

DRAWN BY M.A.L. DATE 11-27-19

CHECKED BY C.J.P. DATE 11-27-19

WETLAND PLANS PREPARED BY:

McFarland Johnson

MCFARLAND JOHNSON
CONCORD, N.H.

SCOUR COUNTERMEASURES DESIGNED BY:

CHA

11 King Court • Keene, NH 03431-4648
Mailrc (603) 357-2445 • www.chacompanies.com

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

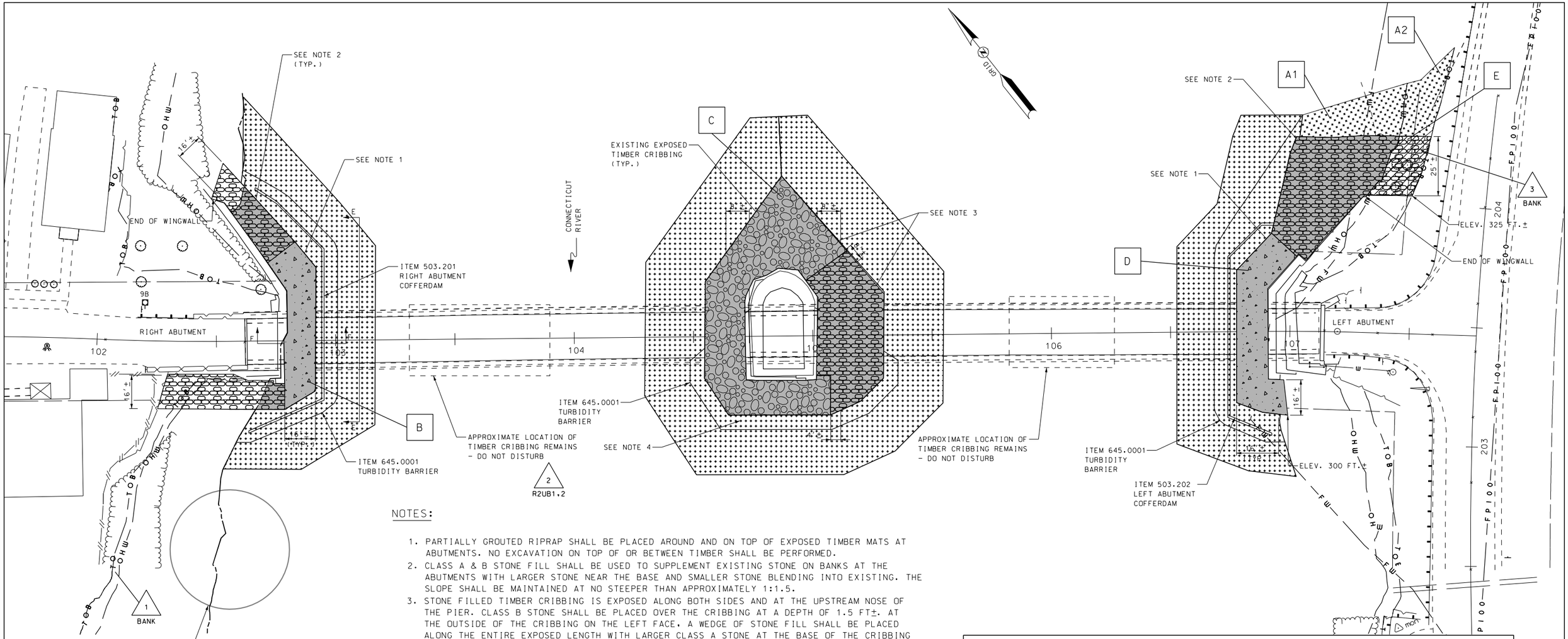
RECOMMENDED FOR APPROVAL:

DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:

ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
A0003(035)	25067	1	6



NOTES:

1. PARTIALLY GROUTED RIPRAP SHALL BE PLACED AROUND AND ON TOP OF EXPOSED TIMBER MATS AT ABUTMENTS. NO EXCAVATION ON TOP OF OR BETWEEN TIMBER SHALL BE PERFORMED.
2. CLASS A & B STONE FILL SHALL BE USED TO SUPPLEMENT EXISTING STONE ON BANKS AT THE ABUTMENTS WITH LARGER STONE NEAR THE BASE AND SMALLER STONE BLENDING INTO EXISTING. THE SLOPE SHALL BE MAINTAINED AT NO STEEPER THAN APPROXIMATELY 1:1.5.
3. STONE FILLED TIMBER CRIBBING IS EXPOSED ALONG BOTH SIDES AND AT THE UPSTREAM NOSE OF THE PIER. CLASS B STONE SHALL BE PLACED OVER THE CRIBBING AT A DEPTH OF 1.5 FT±. AT THE OUTSIDE OF THE CRIBBING ON THE LEFT FACE, A WEDGE OF STONE FILL SHALL BE PLACED ALONG THE ENTIRE EXPOSED LENGTH WITH LARGER CLASS A STONE AT THE BASE OF THE CRIBBING AND CLASS B STONE TO BLEND UP AND OUT TO THE EXISTING STREAMBED, AS DIRECTED BY THE RESIDENT. THE SAME PROCEDURE SHALL BE DONE AROUND THE REMAINDER OF THE PIER WITH CLASS B STONE FILL.
4. THE DOWNSTREAM END OF THE PIER HAS A LARGE BUILDUP OF SAND. THE LIMITS OF THE TIMBER CRIBBING AT THIS LOCATION ARE UNKNOWN. WITH TURBIDITY BARRIER SURROUNDING THE DOWNSTREAM NOSE OF PIER, THE CONTRACTOR SHALL CAREFULLY REMOVE SAND, AS TO NOT DAMAGE ANY TIMBER BELOW, DOWN TO THE ROCKY STREAM BED OR, AS ORDERED BY THE RESIDENT. WORK SHALL BE PAID FOR UNDER ITEM 203.1. ADDITIONAL CLASS B STONE FILL SHALL BE INSTALLED AS NECESSARY, AND BLENDED INTO THE NEW STONE PLACED ALONG THE LEFT AND RIGHT FACES OF THE PIER.
5. CLEARING OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREAS FOR CONSTRUCTION ACCESS AND COUNTERMEASURE BOUNDARIES. COST TO BE INCLUDED IN THE UNIT PRICE OF COUNTERMEASURE ITEMS.

WETLAND CLASSIFICATION CODE	
BANK	NH JURISDICTIONAL RIVERBANK
R2UB1,2	RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL, SAND

WETLAND IMPACT SUMMARY

WETLAND NUMBER	WETLAND CLASS-IFICATION	LOCATION	AREA IMPACTS						LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY		PERMANENT		
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)				BANK LEFT	BANK RIGHT	CHANNEL
			SF	LF	SF	LF	SF	LF	LF	LF	LF
2	R2UB1,2	A1					659	20			
3	BANK	A2					414	33			
2	R2UB1,2	B			1301	81	4416	157			
2	R2UB1,2	C			4215	86	9162	150			
2	R2UB1,2	D			2746	117	4302	148			
3	BANK	E	386	25							
		TOTAL	386	25	8262	284	18953	508			

PERMANENT IMPACTS IN VERMONT: 586 SF
PERMANENT IMPACTS: 8648 SF
TEMPORARY IMPACTS: 18953 SF
TOTAL IMPACTS: 27601 SF

PLAN LEGEND

- PROPOSED PARTIALLY GROUTED RIPRAP (ITEM 583.0505)
- PROPOSED CLASS A & B STONE FILL (ITEM 585.1 & 585.2)
- PROPOSED CLASS B STONE FILL (ITEM 585.2)
- FP100 – 100-YEAR FLOODPLAN
- FW – FLOODWAY
- OHW – ORDINARY HIGH WATER
- TOB – TOP OF BANK
- TEMPORARY SAFETY FENCE

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

- # – WETLAND DESIGNATION NUMBER
- # – WETLAND IMPACT LOCATION
- # – WETLAND MITIGATION AREA
- MITIGATION

DELINEATION COMPLETED BY: MATT URBAN, NHDOT NOVEMBER 2016

20 0 20 40
SCALE IN FEET

McFarland Johnson

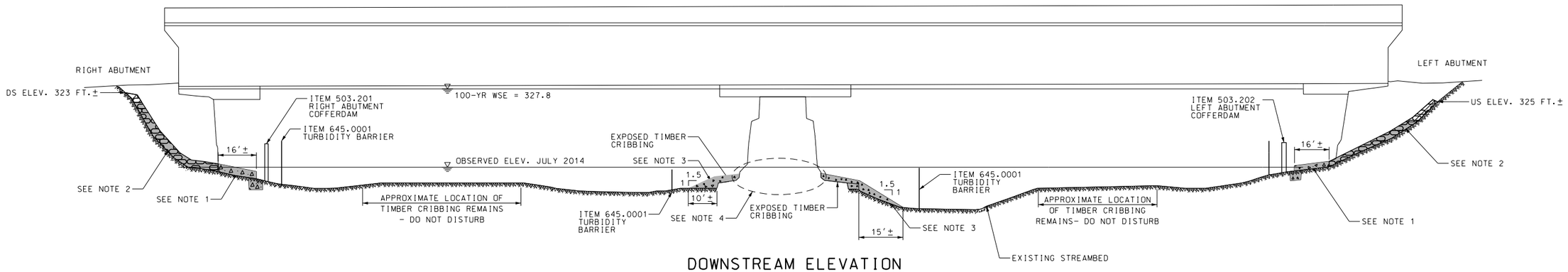
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CORNISH, N.H., WINDSOR, VT BRIDGE NO. 064/108 STATE PROJECT 25067
LOCATION CORNISH TOLL BRIDGE ROAD & CONNECTICUT RIVER
PROPOSED WETLANDS IMPACT

REVISIONS AFTER PROPOSAL	BY	DATE

	BY	DATE		BY	DATE
DESIGNED			CHECKED	CJP	11/19
DRAWN	MAL	11/19	CHECKED	CJP	11/19
QUANTITIES			CHECKED		
ISSUE DATE			FEDERAL PROJECT NO.		
REV. DATE			A0003(035)		

SHEET SCALE
SHEET NO. 2
BRIDGE SHEET OF
FILE NUMBER
TOTAL SHEETS 6



DOWNSTREAM ELEVATION

NOTES:

1. PARTIALLY GROUTED RIPRAP SHALL BE PLACED AROUND AND ON TOP OF EXPOSED TIMBER MATS AT ABUTMENTS. NO EXCAVATION ON TOP OF OR BETWEEN TIMBER SHALL BE PERFORMED.
2. CLASS A & B STONE FILL SHALL BE USED TO SUPPLEMENT EXISTING STONE ON BANKS AT THE ABUTMENTS WITH LARGER STONE NEAR THE BASE AND SMALLER STONE BLENDING INTO EXISTING. THE SLOPE SHALL BE MAINTAINED AT NO STEEPER THAN APPROXIMATELY 1:1.5.
3. STONE FILLED TIMBER CRIBBING IS EXPOSED ALONG BOTH SIDES AND AT THE UPSTREAM NOSE OF THE PIER. CLASS B STONE SHALL BE PLACED OVER THE CRIBBING AT A DEPTH OF 1.5 FT±. AT THE OUTSIDE OF THE CRIBBING ON THE LEFT FACE, A WEDGE OF STONE FILL SHALL BE PLACED ALONG THE ENTIRE EXPOSED LENGTH WITH LARGER CLASS A STONE AT THE BASE OF THE CRIBBING AND CLASS B STONE TO BLEND UP AND OUT TO THE EXISTING STREAMBED, AS DIRECTED BY THE RESIDENT. THE SAME PROCEDURE SHALL BE DONE AROUND THE REMAINDER OF THE PIER WITH CLASS B STONE FILL.
4. THE DOWNSTREAM END OF THE PIER HAS A LARGE BUILDUP OF SAND. THE LIMITS OF THE TIMBER CRIBBING AT THIS LOCATION ARE UNKNOWN. WITH TURBIDITY BARRIER SURROUNDING THE DOWNSTREAM NOSE OF PIER, THE CONTRACTOR SHALL CAREFULLY REMOVE SAND, AS TO NOT DAMAGE ANY TIMBER BELOW, DOWN TO THE ROCKY STREAM BED OR, AS ORDERED BY THE RESIDENT. WORK SHALL BE PAID FOR UNDER ITEM 203.1. ADDITIONAL CLASS B STONE FILL SHALL BE INSTALLED AS NECESSARY, AND BLENDED INTO THE NEW STONE PLACED ALONG THE LEFT AND RIGHT FACES OF THE PIER.
5. CLEARING OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREAS FOR CONSTRUCTION ACCESS AND COUNTERMEASURE BOUNDARIES. COST TO BE INCLUDED IN THE UNIT PRICE OF COUNTERMEASURE ITEMS.

PLAN LEGEND

PROPOSED PARTIALLY GROUTED RIPRAP (ITEM 583.0505)

PROPOSED CLASS A & B STONE FILL (ITEM 585.1 & 585.2)

PROPOSED CLASS B STONE FILL (ITEM 585.2)

20 0 20 40

SCALE IN FEET

McFarland Johnson

SHEET SCALE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CORNISH, N.H., WINDSOR, VT BRIDGE NO. 064/108 STATE PROJECT 25067

LOCATION CORNISH TOLL BRIDGE ROAD & CONNECTICUT RIVER

DOWNSTREAM ELEVATION

BRIDGE SHEET OF

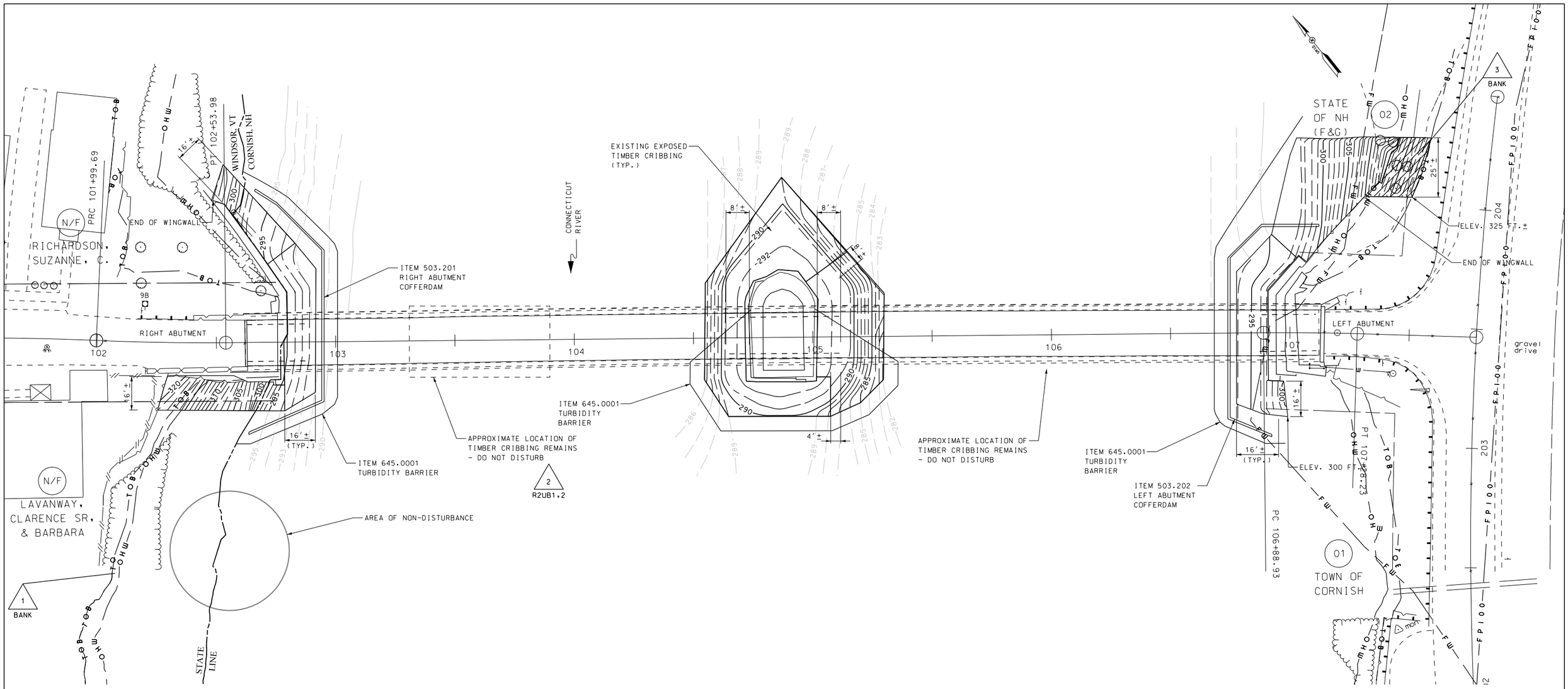
REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
			DESIGNED		CHECKED CJP 11/19
			DRAWN MAL	11/19	CHECKED CJP 11/19
			QUANTITIES		CHECKED
			ISSUE DATE		
			REV. DATE		

FEDERAL PROJECT NO. A0003(035)

SHEET NO. 3

TOTAL SHEETS 6

FILE NUMBER



PLAN LEGEND

- FP100 – 100-YEAR FLOODPLAN
- FW – FLOODWAY
- OHW – ORDINARY HIGH WATER
- TOB – TOP OF BANK
- TEMPORARY SAFETY FENCE

20 0 20 40

SCALE IN FEET

WETLAND CLASSIFICATION CODE	
BANK	NH JURISDICTIONAL RIVERBANK
R2UB1,2	RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL, SAND

DELINEATION COMPLETED BY:
MATT URBAN, NHDOT
NOVEMBER 2016

McFarland Johnson

SHEET SCALE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CORNISH, N.H., WINDSOR, VT BRIDGE NO. 064/108 STATE PROJECT 25067

LOCATION CORNISH TOLL BRIDGE ROAD & CONNECTICUT RIVER

CONTOUR PLAN

BRIDGE SHEET OF

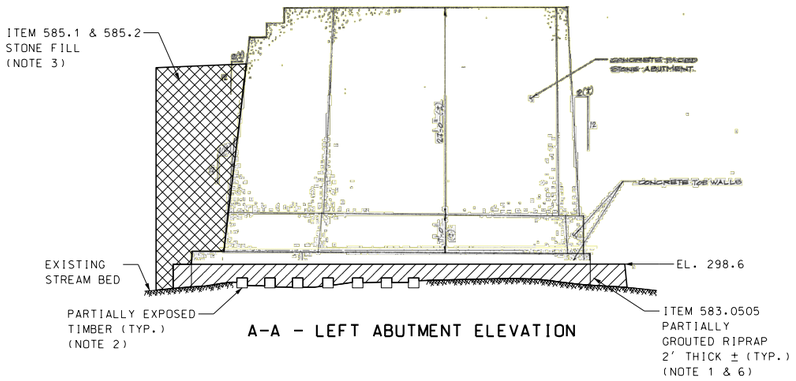
REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
	DESIGNED			CHECKED	CJP 11/19
	DRAWN	MAL	11/19	CHECKED	CJP 11/19
	QUANTITIES			CHECKED	
	ISSUE DATE				
	REV. DATE				

FILE NUMBER

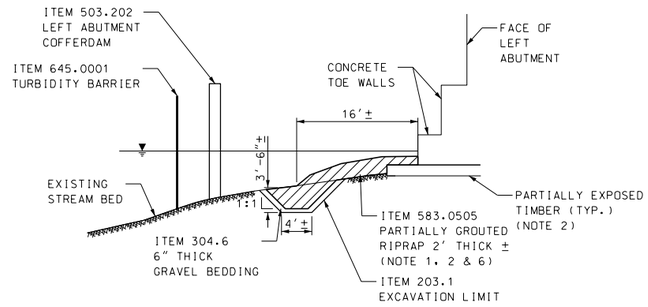
FEDERAL PROJECT NO. A0003(035)

SHEET NO. 4

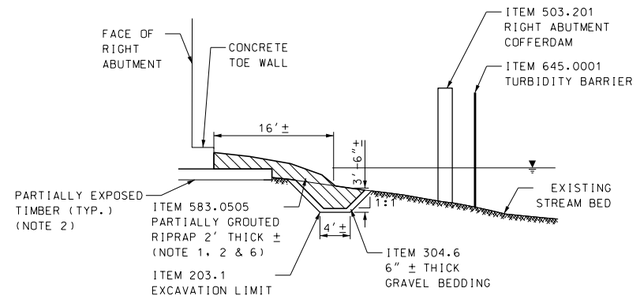
TOTAL SHEETS 6



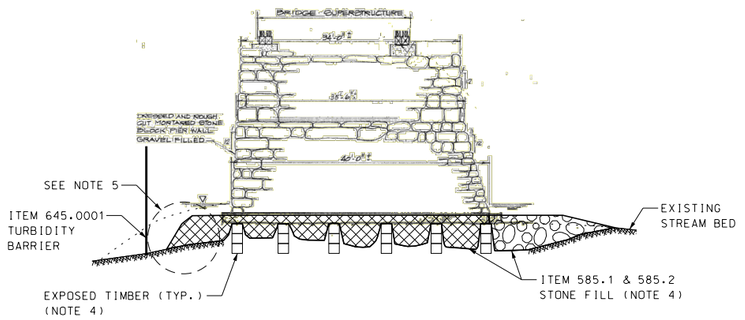
A-A - LEFT ABUTMENT ELEVATION



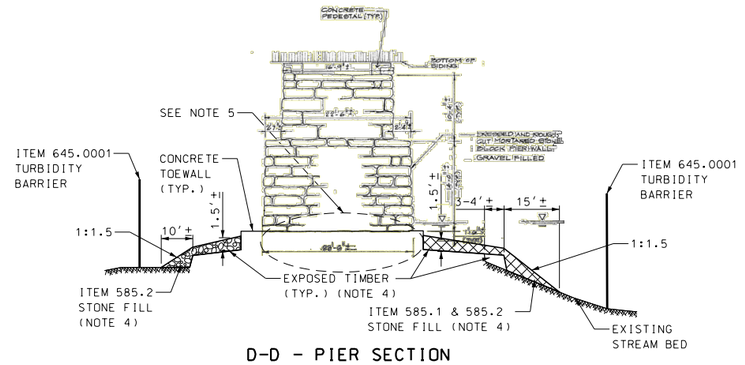
B-B - LEFT ABUTMENT SECTION



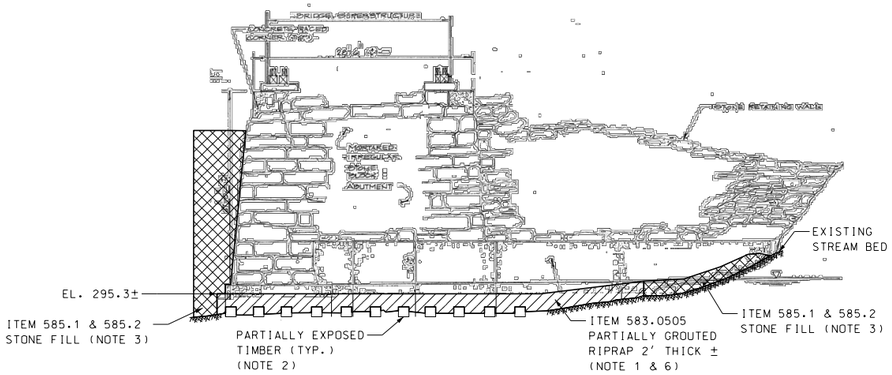
F-F - RIGHT ABUTMENT SECTION



C-C - LEFT FACE OF PIER



D-D - PIER SECTION



E-E - RIGHT ABUTMENT ELEVATION

PLAN LEGEND:

- PROPOSED PARTIALLY GROUTED RIPRAP (ITEM 583.0505)
- PROPOSED CLASS A & B STONE FILL (ITEM 585.1 & 585.2)
- PROPOSED CLASS B STONE FILL (ITEM 585.2)

NOTES:

1. PARTIALLY GROUTED RIPRAP SHALL BE INSTALLED WITHIN THE COFFERDAM LOCATIONS WHICH ARE TO PROVIDE NEAR STAGNANT FLOW CONDITIONS AS STATED ON THE GENERAL NOTES AND ESTIMATE SHEET. THE COFFERDAMS SHALL REMAIN IN PLACE FOR 24 HOURS FOLLOWING COMPLETION OF THE PGR INSTALLATION, AFTER WHICH THEY SHALL BE COMPLETELY REMOVED. WATER DOWNSTREAM OF GROUTING OPERATION SHALL BE MONITORED FOR PH INCREASES UNTIL INSTALLATION IS COMPLETE.
2. PARTIALLY GROUTED RIPRAP SHALL BE PLACED AROUND AND ON TOP OF EXPOSED TIMBER MATS AT ABUTMENTS. NO EXCAVATION ON TOP OF OR BETWEEN TIMBERS SHALL BE PERFORMED.
3. CLASS A & B STONE FILL SHALL BE USED TO SUPPLEMENT EXISTING STONE ON BANKS AT ABUTMENTS WITH LARGER STONE NEAR THE BASE AND SMALLER STONE BLENDING INTO EXISTING. THE SLOPE SHALL BE MAINTAINED AT NO STEEPER THAN APPROXIMATELY 1:1.5.
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6. AS ORDERED BY RESIDENT, EXISTING STONE AROUND ABUTMENTS MAY BE INCORPORATED INTO THE NEW PARTIALLY GROUTED RIPRAP.

McFarland Johnson

SHEET SCALE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CORNISH, N.H., WINDSOR, VT BRIDGE NO. 064/108 STATE PROJECT 25067

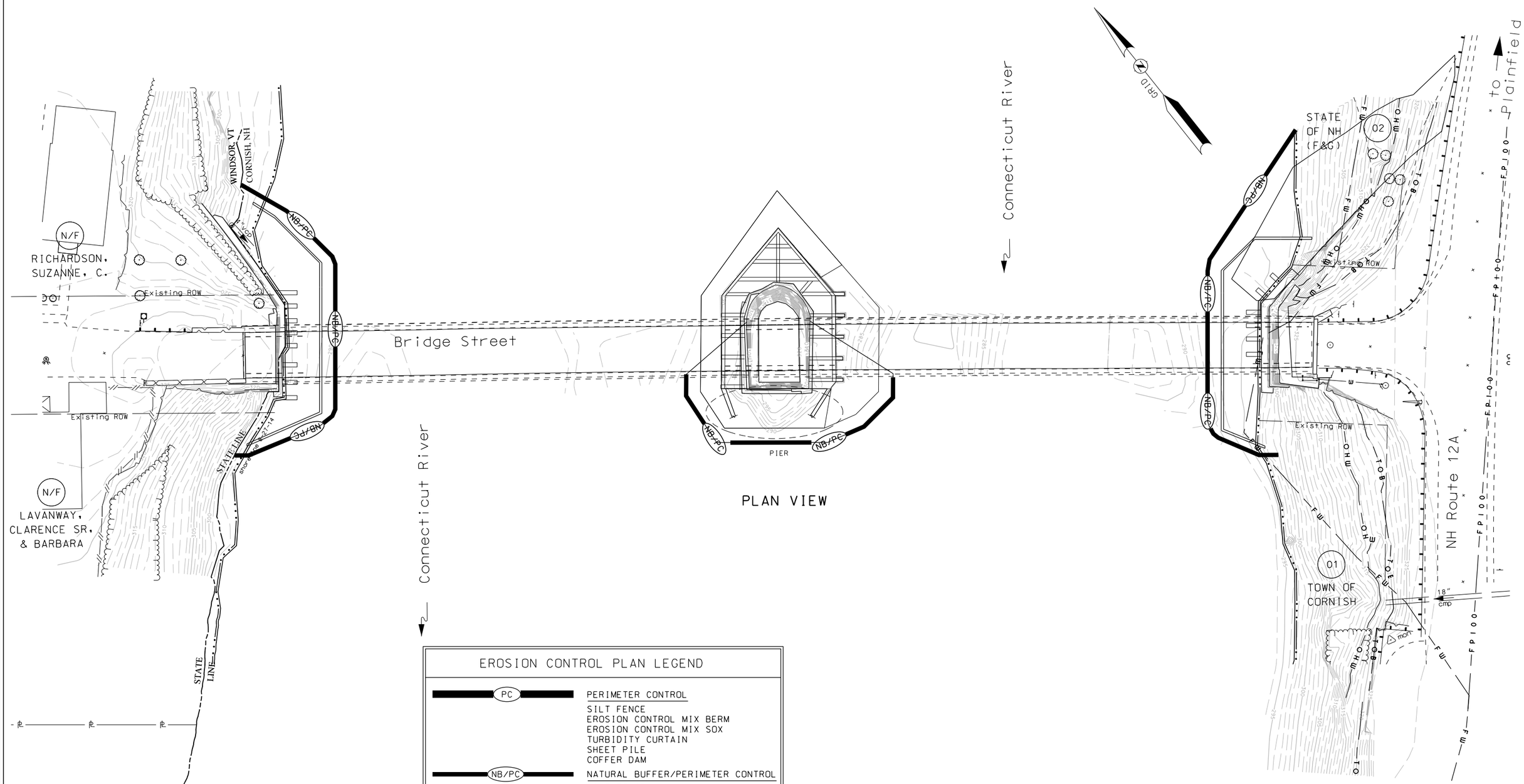
LOCATION CORNISH TOLL BRIDGE ROAD & CONNECTICUT RIVER

COUNTERMEASURE DETAILS

BRIDGE SHEET OF

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
	DESIGNED		CHECKED	CJP	11/19
	DRAWN	MAL	11/19 CHECKED	CJP	11/19
	QUANTITIES		CHECKED		
	ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
	REV. DATE		A0003(035)	5	6

FILE NUMBER



EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL

- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL

- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CP — CHANNEL PROTECTION

- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

CWB — CLEAN WATER BYPASS

- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

McFarland Johnson

SHEET SCALE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CORNISH, N.H., WINDSOR, VT BRIDGE NO. 064/108 STATE PROJECT 25067

LOCATION CORNISH TOLL BRIDGE ROAD & CONNECTICUT RIVER

EROSION CONTROL PLAN

BRIDGE SHEET 1 OF 1

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
	DESIGNED		CHECKED	CJP	11/19
	DRAWN	MAL 11/19	CHECKED	CJP	11/19
	QUANTITIES		CHECKED		
	ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
	REV. DATE		A0003(035)	6	6

FILE NUMBER